

CA2dN

Z 1

-22H001

# 8a

3 1761 11853875 0

8



*Report 141*

HYDRO-ELECTRIC INQUIRY COMMISSION

REPORT  
ON  
WASDELL'S SYSTEM

W. D. GREGORY, CHAIRMAN  
M. J. HANEY  
LLOYD HARRIS  
J. ALLAN ROSS  
R. A. ROSS

COMMISSIONERS


JOSEPH H. W. BOWER  
SECRETARY











Digitized by the Internet Archive  
in 2023 with funding from  
University of Toronto

<https://archive.org/details/31761118538750>



---

W A S D E L L ' S   S Y S T E M

---

COPY



WASHINGTON  
COPY











Minister of the Interior, Ottawa, Ontario, Canada.

Respectfully, Sir,

To His Honour Henry Aschmun, Minister of the Interior,

Lieutenant-Governor of the Province of Ontario,

the Honourable, Sir,

May it Please Your Honour:-

The Commission, created by the Ontario Hydro-Electricity Commission Act, 1907,

In accordance with the commission directed to me by the Ontario Hydro-Electricity Commission Act, 1907, to inquire into and report upon any power developments of the Province of Ontario, and in particular, the Hydro-Electric Power Commission of Ontario (herein referred to as "the Commission"), we have examined and considered the reports, proceedings, records and accounts of the Commission.

**Map Showing Location of**

the works and undertakings comprised in what is

known as the "Hendall's System", and herein report thereon.

The reports submitted to us by our Consulting Engineer, Mr. Walter J. Francis, on the Engineering Mechanics and

by our Auditors, Messrs. Price, Waterhouse & Company, on the

accounts of the Hendall's System are herewith transmitted

to your Honour. These deal in a detailed manner with every

of the subject matters of our reports. Attention is drawn to

the fact that some of the data in the reports of Mr. Francis

and Messrs. Price, Waterhouse & Company are subject to revision,

when account is taken of the accounts of the Commission for

the fiscal year ending September 30th, 1912, which were not

available when the reports were prepared. It is to be noted

that the accounts of the Commission for the fiscal year ending

September 30th, 1912, are not yet available.

District Agent at Niagara Falls, Ontario

The part of the Province supplied by the system

is a narrow strip east and south of Lake Huron, including







To His Honour Henry Cockshutt,

Lieutenant-Governor of the Province of Ontario.

May it Please Your Honour:-

In accordance with the commission directed to us to inquire into and report upon any power developments of the Hydro-Electric Power Commission of Ontario (herein referred to as "the Commission"), we have examined and considered the reports, agreements, records and accounts of the Commission and the Orders-in-Council and Statutes relating to the works and undertakings comprised in what is known as the "Waddell's System", and herein report thereon. The reports submitted to us by our Consulting Engineer, Mr. Walter J. Francis, on the Engineering Economics and by our Auditors, Messrs. Price, Waterhouse & Company, on the accounts of the Waddell's System are herewith transmitted to your Honour. These deal in a detailed manner with many of the subject matters of our report. Attention is drawn to the fact that some of the data in the reports of Mr. Francis and Messrs. Price, Waterhouse & Company are subject to revision, when account is taken of the accounts of the Commission for the fiscal year ending October 31st, 1922, which were not available when the reports were prepared.

District served by Waddell's System

The part of the Province supplied by the system is a narrow strip east and south of Lake Simcoe, including



1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 26

«...иногда в развитии и в характере-манерах»

— 1911 —

in accordance with the commission directed to us at Detroit maintained all the conditions of

14-00000

The Kärntner-Länder were classified as *Landkreis* [district]

Received for publication 10/1/97; accepted 10/1/97.

Te kompania ima shesht, ekinzet, dhjetë e katër

—vi. approved the Lincoln-platino 600 for publication 600

located in the north and south of the city.

known as the "Lashley to Graham" and herein report thereon.

The report submitted to us by our Monitoring Committee,

Mr. Tolson is President of the International Organization for

It was 1941 that the United States entered the war.

...of the ...

... ..

100-443887-1000

the fact that even at the time of the 1970s, the number of U.S. troops

THE UNIVERSITY OF CHICAGO PRESS

—The reason is that the majority of the people in the country are not yet aware of the importance of the role of the State in the development of the economy.

100-441000-1001-1002-1003-1004-1005-1006-1007-1008-1009-1010-1011-1012-1013-1014-1015-1016-1017-1018-1019-1020-1021-1022-1023-1024-1025-1026-1027-1028-1029-1030-1031-1032-1033-1034-1035-1036-1037-1038-1039-1040-1041-1042-1043-1044-1045-1046-1047-1048-1049-1050-1051-1052-1053-1054-1055-1056-1057-1058-1059-1060-1061-1062-1063-1064-1065-1066-1067-1068-1069-1070-1071-1072-1073-1074-1075-1076-1077-1078-1079-1080-1081-1082-1083-1084-1085-1086-1087-1088-1089-1090-1091-1092-1093-1094-1095-1096-1097-1098-1099-1100-1101-1102-1103-1104-1105-1106-1107-1108-1109-1110-1111-1112-1113-1114-1115-1116-1117-1118-1119-1120-1121-1122-1123-1124-1125-1126-1127-1128-1129-1130-1131-1132-1133-1134-1135-1136-1137-1138-1139-1140-1141-1142-1143-1144-1145-1146-1147-1148-1149-1150-1151-1152-1153-1154-1155-1156-1157-1158-1159-1160-1161-1162-1163-1164-1165-1166-1167-1168-1169-1170-1171-1172-1173-1174-1175-1176-1177-1178-1179-1180-1181-1182-1183-1184-1185-1186-1187-1188-1189-1190-1191-1192-1193-1194-1195-1196-1197-1198-1199-1200-1201-1202-1203-1204-1205-1206-1207-1208-1209-1210-1211-1212-1213-1214-1215-1216-1217-1218-1219-1220-1221-1222-1223-1224-1225-1226-1227-1228-1229-1230-1231-1232-1233-1234-1235-1236-1237-1238-1239-1240-1241-1242-1243-1244-1245-1246-1247-1248-1249-1250-1251-1252-1253-1254-1255-1256-1257-1258-1259-1260-1261-1262-1263-1264-1265-1266-1267-1268-1269-1270-1271-1272-1273-1274-1275-1276-1277-1278-1279-1280-1281-1282-1283-1284-1285-1286-1287-1288-1289-1290-1291-1292-1293-1294-1295-1296-1297-1298-1299-1300-1301-1302-1303-1304-1305-1306-1307-1308-1309-1310-1311-1312-1313-1314-1315-1316-1317-1318-1319-1320-1321-1322-1323-1324-1325-1326-1327-1328-1329-1330-1331-1332-1333-1334-1335-1336-1337-1338-1339-1340-1341-1342-1343-1344-1345-1346-1347-1348-1349-1350-1351-1352-1353-1354-1355-1356-1357-1358-1359-1360-1361-1362-1363-1364-1365-1366-1367-1368-1369-1370-1371-1372-1373-1374-1375-1376-1377-1378-1379-1380-1381-1382-1383-1384-1385-1386-1387-1388-1389-1390-1391-1392-1393-1394-1395-1396-1397-1398-1399-1400-1401-1402-1403-1404-1405-1406-1407-1408-1409-1410-1411-1412-1413-1414-1415-1416-1417-1418-1419-1420-1421-1422-1423-1424-1425-1426-1427-1428-1429-1430-1431-1432-1433-1434-1435-1436-1437-1438-1439-1440-1441-1442-1443-1444-1445-1446-1447-1448-1449-1450-1451-1452-1453-1454-1455-1456-1457-1458-1459-1460-1461-1462-1463-1464-1465-1466-1467-1468-1469-1470-1471-1472-1473-1474-1475-1476-1477-1478-1479-1480-1481-1482-1483-1484-1485-1486-1487-1488-1489-1490-1491-1492-1493-1494-1495-1496-1497-1498-1499-1500-1501-1502-1503-1504-1505-1506-1507-1508-1509-1510-1511-1512-1513-1514-1515-1516-1517-1518-1519-1520-1521-1522-1523-1524-1525-1526-1527-1528-1529-1530-1531-1532-1533-1534-1535-1536-1537-1538-1539-1540-1541-1542-1543-1544-1545-1546-1547-1548-1549-1550-1551-1552-1553-1554-1555-1556-1557-1558-1559-1560-1561-1562-1563-1564-1565-1566-1567-1568-1569-1570-1571-1572-1573-1574-1575-1576-1577-1578-1579-1580-1581-1582-1583-1584-1585-1586-1587-1588-1589-1590-1591-1592-1593-1594-1595-1596-1597-1598-1599-1600-1601-1602-1603-1604-1605-1606-1607-1608-1609-1610-1611-1612-1613-1614-1615-1616-1617-1618-1619-1620-1621-1622-1623-1624-1625-1626-1627-1628-1629-1630-1631-1632-1633-1634-1635-1636-1637-1638-1639-1640-1641-1642-1643-1644-1645-1646-1647-1648-1649-1650-1651-1652-1653-1654-1655-1656-1657-1658-1659-1660-1661-1662-1663-1664-1665-1666-1667-1668-1669-1670-1671-1672-1673-1674-1675-1676-1677-1678-1679-1680-1681-1682-1683-1684-1685-1686-1687-1688-1689-1690-1691-1692-1693-1694-1695-1696-1697-1698-1699-1700-1701-1702-1703-1704-1705-1706-1707-1708-1709-1710-1711-1712-1713-1714-1715-1716-1717-1718-1719-1720-1721-1722-1723-1724-1725-1726-1727-1728-1729-1730-1731-1732-1733-1734-1735-1736-1737-1738-1739-1740-1741-1742-1743-1744-1745-1746-1747-1748-1749-1750-1751-1752-1753-1754-1755-1756-1757-1758-1759-1760-1761-1762-1763-1764-1765-1766-1767-1768-1769-1770-1771-1772-1773-1774-1775-1776-1777-1778-1779-1780-1781-1782-1783-1784-1785-1786-1787-1788-1789-1790-1791-1792-1793-1794-1795-1796-1797-1798-1799-1800-1801-1802-1803-1804-1805-1806-1807-1808-1809-1810-1811-1812-1813-1814-1815-1816-181

validity when the reports were prepared.

© 2004 by The McGraw-Hill Companies, Inc.

THEORY OF THE EARTH AND ITS HISTORY

Copyright © 2000 by John Wiley & Sons, Inc.



municipalities between Brechin, Uxbridge and Port Perry, located in Ontario County and Kirkfield in Victoria County, and is indicated on the tinted portion of the map, prepared by Mr. Francis, prefacing this report. This map shows also the Severn and Eugenia Systems which are interconnected with the Wasdell's System for convenience of operation, these three systems being sometimes referred to in the records of the Commission as the "Combined Northern Systems".

#### Historical Sketch

Pursuant to resolutions adopted in June 1912 by the Councils of certain municipalities in the County of Ontario, the Commission investigated the possibilities of developing a supply of electrical power for these municipalities and selected as a site for power development, Wasdell's Falls, on the Severn River, three miles below Lake Couchiching. Estimates of the cost per horse-power from such development were in August, 1912, submitted to the municipalities of Beaverton, Brechin, Cannington, Sunderland and Woodville, and in November, 1912, by-laws in favour of the project were adopted by these municipalities.

On April 21st, 1913, the following Order-in-Council was passed:-

"Upon recommendation of the Hydro-Electric Power Commission of Ontario, in that behalf, the Committee of Council advise that pursuant to the provisions of "The Power Commission Act" Chapter 19, 7 Edward VII and amendments thereto, the Commission be authorized to develop the water power known as Wasdell's Falls on the Severn River in







the Province of Ontario such authority to cover the following matters:

1. The purchase of the Riparian Rights necessary for the development.
2. The purchase of necessary material and equipment for construction of the plant at Wasdell's Falls for the generation of electrical energy and its transformation for transmission to the municipalities in the Cannington and Beaverton Districts.
3. The construction of transmission lines and transformer stations for delivery of power to the municipalities in the Cannington and Beaverton District, including both low and high tension transmission lines."

The Commission in 1913 purchased the power privilege of Wasdell's Falls and lands adjoining and proceeded with the construction of its first hydro-electric power plant for production of power, prior to this time having purchased the power transmitted to municipalities.

Contracts were entered into by five municipalities with the Commission during 1913 as follows:-

<u>Municipality</u>	<u>Date of Contract</u>	<u>H.P.Load</u>
Beaverton	March 20th, 1913	250
Brochin	April 2nd, 1913	50
Cannington	March 10th, 1913	175
Sunderland	August 15th, 1913	80
Woodville	August 15th, 1913	70

The Wasdell's Falls generating station was ready for service on October 6th, 1914, and by November, 1914, the system was serving four municipalities, namely, Beaverton, Cannington, Sunderland and Woodville. Two transforming and distributing stations were constructed, one at Beaverton and







the second at Cannington, and these were supplied from the generating station at 22,000 volts. The municipalities of Sunderland and Woodville were supplied over 4,000-volt feeders from the Cannington distributing station.

In January, 1915, the village of Brechin was supplied with power at 4,000 volts from the distributing station at Beaverton.

In June, 1920, the police village of Kirkfield and the Crushed Stone Company, Limited, of the same place, were added to the Wasdell's System both being supplied from a distributing station in the village, the former at 4,000 volts and the latter at 575 volts.

Construction on the Wasdell's rural lines was started in 1918 in the vicinity of Beaverton, and at October 31st, 1921, rural lines were operated by Beaverton, Brechin, Sunderland and Woodville.

In the fall of 1922, the main transmission network was extended to Greenbank, from which point the municipalities of Uxbridge and Port Perry were served by a 4,000-volt line from the Greenbank distributing station.

The only generating station at present constructed on the Wasdell's System is that at Wasdell's Falls on the Severn River, a short distance from its source at Lake Couchiching. The Swift Rapids plant of the Orillia Water and Light Commission is about fifteen miles further down the river and the Big Chute plant of the Severn System is about



The system at Garsington, and those were supplied from the generating station at Widdowson. The transmission of electricity was handled by a cable system over a 100-mile distance from the generating station at Garsington.

In 1900, 1901, the village at Garsington was supplied with power and a 100-mile cable system was installed from the generating station at Garsington.

In 1902, 1903, the village at Garsington was supplied with power and a 100-mile cable system was installed from the generating station at Garsington. In 1904, 1905, the village at Garsington was supplied with power and a 100-mile cable system was installed from the generating station at Garsington. In 1906, 1907, the village at Garsington was supplied with power and a 100-mile cable system was installed from the generating station at Garsington. In 1908, 1909, the village at Garsington was supplied with power and a 100-mile cable system was installed from the generating station at Garsington. In 1910, 1911, the village at Garsington was supplied with power and a 100-mile cable system was installed from the generating station at Garsington.

During the year 1912, the village at Garsington was supplied with power and a 100-mile cable system was installed from the generating station at Garsington. In 1913, 1914, the village at Garsington was supplied with power and a 100-mile cable system was installed from the generating station at Garsington. In 1915, 1916, the village at Garsington was supplied with power and a 100-mile cable system was installed from the generating station at Garsington. In 1917, 1918, the village at Garsington was supplied with power and a 100-mile cable system was installed from the generating station at Garsington. In 1919, 1920, the village at Garsington was supplied with power and a 100-mile cable system was installed from the generating station at Garsington.

In the fall of 1922, the main transmission network was extended to Garsington, and a 100-mile cable system was installed from the generating station at Garsington. In 1923, 1924, the village at Garsington was supplied with power and a 100-mile cable system was installed from the generating station at Garsington. In 1925, 1926, the village at Garsington was supplied with power and a 100-mile cable system was installed from the generating station at Garsington. In 1927, 1928, the village at Garsington was supplied with power and a 100-mile cable system was installed from the generating station at Garsington. In 1929, 1930, the village at Garsington was supplied with power and a 100-mile cable system was installed from the generating station at Garsington.

The only generating station at present connected to the system is that at Garsington. In 1931, 1932, the village at Garsington was supplied with power and a 100-mile cable system was installed from the generating station at Garsington. In 1933, 1934, the village at Garsington was supplied with power and a 100-mile cable system was installed from the generating station at Garsington. In 1935, 1936, the village at Garsington was supplied with power and a 100-mile cable system was installed from the generating station at Garsington. In 1937, 1938, the village at Garsington was supplied with power and a 100-mile cable system was installed from the generating station at Garsington. In 1939, 1940, the village at Garsington was supplied with power and a 100-mile cable system was installed from the generating station at Garsington.



eight miles downstream from the Swift Rapids development, being only a short distance from the mouth of the Severn.

The capacity of this plant is approximately 860 horse-power at 80 per cent. power factor in accordance with the rating of the Commission.

Up to October 31st, 1921, the Commission had constructed on the Wasdell's System 78.7 miles of transmission and distribution lines; of these, 23.3 miles of 4,000-volt lines distribute power from the high voltage distributing stations to the smaller municipalities and the rural lines; the remaining 55.4 miles are operated at 22,000 volts and form a network supplying the larger municipalities, and also connecting together for parallel operation, the generating stations of the Wasdell's, Sexern and Eugenia Systems and the Swift Rapids station of the Orillia Water and Light Commission.

The transmission system is constructed on wooden poles throughout and presents no extraordinary features.

The transmission lines feed the various municipalities at low voltage through three substations, which are listed in the table below, showing their voltage and capacity:



which will be determined from the test results, being only a short distance from the mouth of the Bayou. The capacity of this plant is approximately 600 horse-power at 80 per cent. power factor in accordance with the rating of the Commission.

Up to October 31st, 1931, the Commission had connected on the Washell's System 70.7 miles of transmission and distribution lines; of these, 23.3 miles of 2,300-volt lines also included power lines and distribution systems in the smaller communities and the rural areas; the remaining 47.4 miles was located at 22,000 volts and form a system supplying the larger communities, and the system is known as the Washell's system. The Commission estimates that the Washell's system and the other systems are the only systems of the Oilfield Water and Light Commission.

The transmission system is connected on several other systems and presents no extraordinary features.

The transmission lines feed the various communities as the voltage drops from 23,000 volts, and the lines in the field below, showing that voltage is

Table of Transforming and Distributing Stations

Location	K.V.A. Capacity	Voltage		Remarks
		H. V.	L. V.	
Beaverton	300	22,000	2,300	Supplies Beaverton and Brechin at 4,000 volts
Cannington	300	22,000	2,300/575	
Kirkfield	225	22,000	2,300/575	Supplies Kirkfield at 4,000 volts, and the Crushed Stone Company at 575 volts.

With the exception of the rural lines there are no municipalities on the Wasdell's System in which the Commission distributes power retail to consumers. It acts as a wholesale distributor only and in all the municipalities power is distributed by the municipality itself or by local commission. It is understood that the accounting for all of the municipalities of the system is in accordance with the standard accounting system of the Commission. Details of the accounts of the various municipalities are given in the Annual Reports of the Commission.

In 1916 tie lines were constructed connecting the Wasdell's System with the Orillia Commission at Longford and the Eugenia System with the Severn System at Collingwood. In 1917 an existing tie line between the Big Chute plant on the Severn System and the Ragged Rapids plant of the Orillia Commission was replaced by a tie line between the Big Chute plant and the new development of the Orillia Commission at Swift Rapids.



Table of Transmitted and Received Messages

Station	Received	Transmitted	Remarks
Essex	22,000	2,500	Supplies Essex and Essex at 4,000 miles
Essex	22,000	2,500	
Essex	22,000	2,500	Supplies Essex and Essex at 4,000 miles

With the completion of the work done here and the  
completion of the Essex system in which the Essex  
Essex from Essex to Essex. It will be a complete  
Essex only and is not the Essex power is  
Essex of the Essex by Essex.  
It is understood that the Essex for all of the Essex-  
Essex of the Essex is in accordance with the Essex  
Essex Essex of the Essex. Details of the Essex  
at the Essex Essex are given in the Essex Essex  
of the Essex.

In 1916 the lines were connected connecting the  
Essex system with the Essex system at Essex  
and the Essex system with the Essex system at Essex.  
In 1917 as detailed the Essex system was Essex  
the Essex system and the Essex Essex of the Essex  
Essex was Essex by a line between the Essex  
Essex and the Essex Essex of the Essex Essex of  
Essex Essex.

Of the transmission lines joining the Wasdell's and Big Chute developments, the Commission owns the section from the Wasdell's Falls station to Longford and from Swift Rapids to Big Chute, the intervening section extending from Longford to the Swift Rapids station being the property of the town of Orillia.

The construction of the lines as above has rendered possible the interchange of power amongst the Eugenia, the Severn, the Wasdell's and the Orillia Commission Systems.

The parallel operation of these four plants has given very satisfactory service to the four systems concerned. The high head and large storage capacity of the Eugenia development make it very efficient as a peak load plant, and it is possible for it to draw power from the Severn System and conserve the water above the Eugenia development to be used during the period of peak load on the combined systems.

These plants serve that section of the Province of Ontario which lies between Port Perry and Uxbridge in Ontario County on the extreme east, and Tara and Kincardine in Bruce County on the extreme west, comprising two-thirds of Ontario County, a small portion of Victoria County, all of Simcoe County, Dufferin County, Grey County and Bruce County, and a small portion of the northern sections of Wellington and Huron Counties.

There are no undeveloped power sites on the Wasdell's System which have sufficient capacity to warrant





their development, and when the demand on the system exceeds the capacity of the present development, power must be developed at or purchased from some source outside the boundaries of the Wasdell's System.

The only power development of any kind on the Wasdell's System, other than the development at Wasdell's Falls, is the hydro-electric development at Swift Rapids owned by the Orillia Water and Light Commission. This development, and the town of Orillia, which it supplies, are within the boundaries of the Wasdell's System, but do not form a part of it.

Since the commencement of operations the growth of the system has been fairly steady. The loads on the system were as follows, the figures being given in horse-power for the month of October in each year: 1915, 209; 1916, 250; 1917, 275; 1918, 261; 1919, 326; 1920, 452; 1921, 399; 1922, 420. These figures are the sum of the loads in October for the various municipalities and do not show the actual peak demands on the system, but they do indicate the growth of the demand. The amount of power sold to the Severn System for these years has not been included as it does not represent a growth of the Wasdell's System.

Owing to the interconnection of the Wasdell's, Severn and Engenia Systems, and the methods of keeping the records by the Commission, it is impracticable to separate the records satisfactorily so as to indicate the actual peak on any one part of the Combined Northern Systems.



local requirements, and when the capacity of the present development power was to be developed at a distance from the power source the boundaries of the Wendell's system.

The only power development of any kind on the Wendell's system, other than the development at Wendell's Falls, is the hydro-electric development at White Rapids owned by the Ontario Water and Light Commission. This development, and the town of Orillia, which is supplied are within the boundaries of the Wendell's system, but do not form a part of it.

Since the commencement of operations the growth

COPY

at the various points of development has been as follows: The growth at White Rapids in 1911-1912 was 1,000,000 kwh, in 1912-1913 1,200,000 kwh, in 1913-1914 1,400,000 kwh, in 1914-1915 1,600,000 kwh, in 1915-1916 1,800,000 kwh, in 1916-1917 2,000,000 kwh, in 1917-1918 2,200,000 kwh, in 1918-1919 2,400,000 kwh, in 1919-1920 2,600,000 kwh, in 1920-1921 2,800,000 kwh, in 1921-1922 3,000,000 kwh, in 1922-1923 3,200,000 kwh, in 1923-1924 3,400,000 kwh, in 1924-1925 3,600,000 kwh, in 1925-1926 3,800,000 kwh, in 1926-1927 4,000,000 kwh, in 1927-1928 4,200,000 kwh, in 1928-1929 4,400,000 kwh, in 1929-1930 4,600,000 kwh, in 1930-1931 4,800,000 kwh, in 1931-1932 5,000,000 kwh, in 1932-1933 5,200,000 kwh, in 1933-1934 5,400,000 kwh, in 1934-1935 5,600,000 kwh, in 1935-1936 5,800,000 kwh, in 1936-1937 6,000,000 kwh, in 1937-1938 6,200,000 kwh, in 1938-1939 6,400,000 kwh, in 1939-1940 6,600,000 kwh, in 1940-1941 6,800,000 kwh, in 1941-1942 7,000,000 kwh, in 1942-1943 7,200,000 kwh, in 1943-1944 7,400,000 kwh, in 1944-1945 7,600,000 kwh, in 1945-1946 7,800,000 kwh, in 1946-1947 8,000,000 kwh, in 1947-1948 8,200,000 kwh, in 1948-1949 8,400,000 kwh, in 1949-1950 8,600,000 kwh, in 1950-1951 8,800,000 kwh, in 1951-1952 9,000,000 kwh, in 1952-1953 9,200,000 kwh, in 1953-1954 9,400,000 kwh, in 1954-1955 9,600,000 kwh, in 1955-1956 9,800,000 kwh, in 1956-1957 10,000,000 kwh, in 1957-1958 10,200,000 kwh, in 1958-1959 10,400,000 kwh, in 1959-1960 10,600,000 kwh, in 1960-1961 10,800,000 kwh, in 1961-1962 11,000,000 kwh, in 1962-1963 11,200,000 kwh, in 1963-1964 11,400,000 kwh, in 1964-1965 11,600,000 kwh, in 1965-1966 11,800,000 kwh, in 1966-1967 12,000,000 kwh, in 1967-1968 12,200,000 kwh, in 1968-1969 12,400,000 kwh, in 1969-1970 12,600,000 kwh, in 1970-1971 12,800,000 kwh, in 1971-1972 13,000,000 kwh, in 1972-1973 13,200,000 kwh, in 1973-1974 13,400,000 kwh, in 1974-1975 13,600,000 kwh, in 1975-1976 13,800,000 kwh, in 1976-1977 14,000,000 kwh, in 1977-1978 14,200,000 kwh, in 1978-1979 14,400,000 kwh, in 1979-1980 14,600,000 kwh, in 1980-1981 14,800,000 kwh, in 1981-1982 15,000,000 kwh, in 1982-1983 15,200,000 kwh, in 1983-1984 15,400,000 kwh, in 1984-1985 15,600,000 kwh, in 1985-1986 15,800,000 kwh, in 1986-1987 16,000,000 kwh, in 1987-1988 16,200,000 kwh, in 1988-1989 16,400,000 kwh, in 1989-1990 16,600,000 kwh, in 1990-1991 16,800,000 kwh, in 1991-1992 17,000,000 kwh, in 1992-1993 17,200,000 kwh, in 1993-1994 17,400,000 kwh, in 1994-1995 17,600,000 kwh, in 1995-1996 17,800,000 kwh, in 1996-1997 18,000,000 kwh, in 1997-1998 18,200,000 kwh, in 1998-1999 18,400,000 kwh, in 1999-2000 18,600,000 kwh, in 2000-2001 18,800,000 kwh, in 2001-2002 19,000,000 kwh, in 2002-2003 19,200,000 kwh, in 2003-2004 19,400,000 kwh, in 2004-2005 19,600,000 kwh, in 2005-2006 19,800,000 kwh, in 2006-2007 20,000,000 kwh, in 2007-2008 20,200,000 kwh, in 2008-2009 20,400,000 kwh, in 2009-2010 20,600,000 kwh, in 2010-2011 20,800,000 kwh, in 2011-2012 21,000,000 kwh, in 2012-2013 21,200,000 kwh, in 2013-2014 21,400,000 kwh, in 2014-2015 21,600,000 kwh, in 2015-2016 21,800,000 kwh, in 2016-2017 22,000,000 kwh, in 2017-2018 22,200,000 kwh, in 2018-2019 22,400,000 kwh, in 2019-2020 22,600,000 kwh, in 2020-2021 22,800,000 kwh, in 2021-2022 23,000,000 kwh, in 2022-2023 23,200,000 kwh, in 2023-2024 23,400,000 kwh, in 2024-2025 23,600,000 kwh, in 2025-2026 23,800,000 kwh, in 2026-2027 24,000,000 kwh, in 2027-2028 24,200,000 kwh, in 2028-2029 24,400,000 kwh, in 2029-2030 24,600,000 kwh, in 2030-2031 24,800,000 kwh, in 2031-2032 25,000,000 kwh, in 2032-2033 25,200,000 kwh, in 2033-2034 25,400,000 kwh, in 2034-2035 25,600,000 kwh, in 2035-2036 25,800,000 kwh, in 2036-2037 26,000,000 kwh, in 2037-2038 26,200,000 kwh, in 2038-2039 26,400,000 kwh, in 2039-2040 26,600,000 kwh, in 2040-2041 26,800,000 kwh, in 2041-2042 27,000,000 kwh, in 2042-2043 27,200,000 kwh, in 2043-2044 27,400,000 kwh, in 2044-2045 27,600,000 kwh, in 2045-2046 27,800,000 kwh, in 2046-2047 28,000,000 kwh, in 2047-2048 28,200,000 kwh, in 2048-2049 28,400,000 kwh, in 2049-2050 28,600,000 kwh, in 2050-2051 28,800,000 kwh, in 2051-2052 29,000,000 kwh, in 2052-2053 29,200,000 kwh, in 2053-2054 29,400,000 kwh, in 2054-2055 29,600,000 kwh, in 2055-2056 29,800,000 kwh, in 2056-2057 30,000,000 kwh, in 2057-2058 30,200,000 kwh, in 2058-2059 30,400,000 kwh, in 2059-2060 30,600,000 kwh, in 2060-2061 30,800,000 kwh, in 2061-2062 31,000,000 kwh, in 2062-2063 31,200,000 kwh, in 2063-2064 31,400,000 kwh, in 2064-2065 31,600,000 kwh, in 2065-2066 31,800,000 kwh, in 2066-2067 32,000,000 kwh, in 2067-2068 32,200,000 kwh, in 2068-2069 32,400,000 kwh, in 2069-2070 32,600,000 kwh, in 2070-2071 32,800,000 kwh, in 2071-2072 33,000,000 kwh, in 2072-2073 33,200,000 kwh, in 2073-2074 33,400,000 kwh, in 2074-2075 33,600,000 kwh, in 2075-2076 33,800,000 kwh, in 2076-2077 34,000,000 kwh, in 2077-2078 34,200,000 kwh, in 2078-2079 34,400,000 kwh, in 2079-2080 34,600,000 kwh, in 2080-2081 34,800,000 kwh, in 2081-2082 35,000,000 kwh, in 2082-2083 35,200,000 kwh, in 2083-2084 35,400,000 kwh, in 2084-2085 35,600,000 kwh, in 2085-2086 35,800,000 kwh, in 2086-2087 36,000,000 kwh, in 2087-2088 36,200,000 kwh, in 2088-2089 36,400,000 kwh, in 2089-2090 36,600,000 kwh, in 2090-2091 36,800,000 kwh, in 2091-2092 37,000,000 kwh, in 2092-2093 37,200,000 kwh, in 2093-2094 37,400,000 kwh, in 2094-2095 37,600,000 kwh, in 2095-2096 37,800,000 kwh, in 2096-2097 38,000,000 kwh, in 2097-2098 38,200,000 kwh, in 2098-2099 38,400,000 kwh, in 2099-2100 38,600,000 kwh, in 2100-2101 38,800,000 kwh, in 2101-2102 39,000,000 kwh, in 2102-2103 39,200,000 kwh, in 2103-2104 39,400,000 kwh, in 2104-2105 39,600,000 kwh, in 2105-2106 39,800,000 kwh, in 2106-2107 40,000,000 kwh, in 2107-2108 40,200,000 kwh, in 2108-2109 40,400,000 kwh, in 2109-2110 40,600,000 kwh, in 2110-2111 40,800,000 kwh, in 2111-2112 41,000,000 kwh, in 2112-2113 41,200,000 kwh, in 2113-2114 41,400,000 kwh, in 2114-2115 41,600,000 kwh, in 2115-2116 41,800,000 kwh, in 2116-2117 42,000,000 kwh, in 2117-2118 42,200,000 kwh, in 2118-2119 42,400,000 kwh, in 2119-2120 42,600,000 kwh, in 2120-2121 42,800,000 kwh, in 2121-2122 43,000,000 kwh, in 2122-2123 43,200,000 kwh, in 2123-2124 43,400,000 kwh, in 2124-2125 43,600,000 kwh, in 2125-2126 43,800,000 kwh, in 2126-2127 44,000,000 kwh, in 2127-2128 44,200,000 kwh, in 2128-2129 44,400,000 kwh, in 2129-2130 44,600,000 kwh, in 2130-2131 44,800,000 kwh, in 2131-2132 45,000,000 kwh, in 2132-2133 45,200,000 kwh, in 2133-2134 45,400,000 kwh, in 2134-2135 45,600,000 kwh, in 2135-2136 45,800,000 kwh, in 2136-2137 46,000,000 kwh, in 2137-2138 46,200,000 kwh, in 2138-2139 46,400,000 kwh, in 2139-2140 46,600,000 kwh, in 2140-2141 46,800,000 kwh, in 2141-2142 47,000,000 kwh, in 2142-2143 47,200,000 kwh, in 2143-2144 47,400,000 kwh, in 2144-2145 47,600,000 kwh, in 2145-2146 47,800,000 kwh, in 2146-2147 48,000,000 kwh, in 2147-2148 48,200,000 kwh, in 2148-2149 48,400,000 kwh, in 2149-2150 48,600,000 kwh, in 2150-2151 48,800,000 kwh, in 2151-2152 49,000,000 kwh, in 2152-2153 49,200,000 kwh, in 2153-2154 49,400,000 kwh, in 2154-2155 49,600,000 kwh, in 2155-2156 49,800,000 kwh, in 2156-2157 50,000,000 kwh, in 2157-2158 50,200,000 kwh, in 2158-2159 50,400,000 kwh, in 2159-2160 50,600,000 kwh, in 2160-2161 50,800,000 kwh, in 2161-2162 51,000,000 kwh, in 2162-2163 51,200,000 kwh, in 2163-2164 51,400,000 kwh, in 2164-2165 51,600,000 kwh, in 2165-2166 51,800,000 kwh, in 2166-2167 52,000,000 kwh, in 2167-2168 52,200,000 kwh, in 2168-2169 52,400,000 kwh, in 2169-2170 52,600,000 kwh, in 2170-2171 52,800,000 kwh, in 2171-2172 53,000,000 kwh, in 2172-2173 53,200,000 kwh, in 2173-2174 53,400,000 kwh, in 2174-2175 53,600,000 kwh, in 2175-2176 53,800,000 kwh, in 2176-2177 54,000,000 kwh, in 2177-2178 54,200,000 kwh, in 2178-2179 54,400,000 kwh, in 2179-2180 54,600,000 kwh, in 2180-2181 54,800,000 kwh, in 2181-2182 55,000,000 kwh, in 2182-2183 55,200,000 kwh, in 2183-2184 55,400,000 kwh, in 2184-2185 55,600,000 kwh, in 2185-2186 55,800,000 kwh, in 2186-2187 56,000,000 kwh, in 2187-2188 56,200,000 kwh, in 2188-2189 56,400,000 kwh, in 2189-2190 56,600,000 kwh, in 2190-2191 56,800,000 kwh, in 2191-2192 57,000,000 kwh, in 2192-2193 57,200,000 kwh, in 2193-2194 57,400,000 kwh, in 2194-2195 57,600,000 kwh, in 2195-2196 57,800,000 kwh, in 2196-2197 58,000,000 kwh, in 2197-2198 58,200,000 kwh, in 2198-2199 58,400,000 kwh, in 2199-2200 58,600,000 kwh, in 2200-2201 58,800,000 kwh, in 2201-2202 59,000,000 kwh, in 2202-2203 59,200,000 kwh, in 2203-2204 59,400,000 kwh, in 2204-2205 59,600,000 kwh, in 2205-2206 59,800,000 kwh, in 2206-2207 60,000,000 kwh, in 2207-2208 60,200,000 kwh, in 2208-2209 60,400,000 kwh, in 2209-2210 60,600,000 kwh, in 2210-2211 60,800,000 kwh, in 2211-2212 61,000,000 kwh, in 2212-2213 61,200,000 kwh, in 2213-2214 61,400,000 kwh, in 2214-2215 61,600,000 kwh, in 2215-2216 61,800,000 kwh, in 2216-2217 62,000,000 kwh, in 2217-2218 62,200,000 kwh, in 2218-2219 62,400,000 kwh, in 2219-2220 62,600,000 kwh, in 2220-2221 62,800,000 kwh, in 2221-2222 63,000,000 kwh, in 2222-2223 63,200,000 kwh, in 2223-2224 63,400,000 kwh, in 2224-2225 63,600,000 kwh, in 2225-2226 63,800,000 kwh, in 2226-2227 64,000,000 kwh, in 2227-2228 64,200,000 kwh, in 2228-2229 64,400,000 kwh, in 2229-2230 64,600,000 kwh, in 2230-2231 64,800,000 kwh, in 2231-2232 65,000,000 kwh, in 2232-2233 65,200,000 kwh, in 2233-2234 65,400,000 kwh, in 2234-2235 65,600,000 kwh, in 2235-2236 65,800,000 kwh, in 2236-2237 66,000,000 kwh, in 2237-2238 66,200,000 kwh, in 2238-2239 66,400,000 kwh, in 2239-2240 66,600,000 kwh, in 2240-2241 66,800,000 kwh, in 2241-2242 67,000,000 kwh, in 2242-2243 67,200,000 kwh, in 2243-2244 67,400,000 kwh, in 2244-2245 67,600,000 kwh, in 2245-2246 67,800,000 kwh, in 2246-2247 68,000,000 kwh, in 2247-2248 68,200,000 kwh, in 2248-2249 68,400,000 kwh, in 2249-2250 68,600,000 kwh, in 2250-2251 68,800,000 kwh, in 2251-2252 69,000,000 kwh, in 2252-2253 69,200,000 kwh, in 2253-2254 69,400,000 kwh, in 2254-2255 69,600,000 kwh, in 2255-2256 69,800,000 kwh, in 2256-2257 70,000,000 kwh, in 2257-2258 70,200,000 kwh, in 2258-2259 70,400,000 kwh, in 2259-2260 70,600,000 kwh, in 2260-2261 70,800,000 kwh, in 2261-2262 71,000,000 kwh, in 2262-2263 71,200,000 kwh, in 2263-2264 71,400,000 kwh, in 2264-2265 71,600,000 kwh, in 2265-2266 71,800,000 kwh, in 2266-2267 72,000,000 kwh, in 2267-2268 72,200,000 kwh, in 2268-2269 72,400,000 kwh, in 2269-2270 72,600,000 kwh, in 2270-2271 72,800,000 kwh, in 2271-2272 73,000,000 kwh, in 2272-2273 73,200,000 kwh, in 2273-2274 73,400,000 kwh, in 2274-2275 73,600,000 kwh, in 2275-2276 73,800,000 kwh, in 2276-2277 74,000,000 kwh, in 2277-2278 74,200,000 kwh, in 2278-2279 74,400,000 kwh, in 2279-2280 74,600,000 kwh, in 2280-2281 74,800,000 kwh, in 2281-2282 75,000,000 kwh, in 2282-2283 75,200,000 kwh, in 2283-2284 75,400,000 kwh, in 2284-2285 75,600,000 kwh, in 2285-2286 75,800,000 kwh, in 2286-2287 76,000,000 kwh, in 2287-2288 76,200,000 kwh, in 2288-2289 76,400,000 kwh, in 2289-2290 76,600,000 kwh, in 2290-2291 76,800,000 kwh, in 2291-2292 77,000,000 kwh, in 2292-2293 77,200,000 kwh, in 2293-2294 77,400,000 kwh, in 2294-2295 77,600,000 kwh, in 2295-2296 77,800,000 kwh, in 2296-2297 78,000,000 kwh, in 2297-2298 78,200,000 kwh, in 2298-2299 78,400,000 kwh, in 2299-2300 78,600,000 kwh, in 2300-2301 78,800,000 kwh, in 2301-2302 79,000,000 kwh, in 2302-2303 79,200,000 kwh, in 2303-2304 79,400,000 kwh, in 2304-2305 79,600,000 kwh, in 2305-2306 79,800,000 kwh, in 2306-2307 80,000,000 kwh, in 2307-2308 80,200,000 kwh, in 2308-2309 80,400,000 kwh, in 2309-2310 80,600,000 kwh, in 2310-2311 80,800,000 kwh, in 2311-2312 81,000,000 kwh, in 2312-2313 81,200,000 kwh, in 2313-2314 81,400,000 kwh, in 2314-2315 81,600,000 kwh, in 2315-2316 81,800,000 kwh, in 2316-2317 82,000,000 kwh, in 2317-2318 82,200,000 kwh, in 2318-2319 82,400,000 kwh, in 2319-2320 82,600,000 kwh, in 2320-2321 82,800,000 kwh, in 2321-2322 83,000,000 kwh, in 2322-2323 83,200,000 kwh, in 2323-2324 83,400,000 kwh, in 2324-2325 83,600,000 kwh, in 2325-2326 83,800,000 kwh, in 2326-2327 84,000,000 kwh, in 2327-2328 84,200,000 kwh, in 2328-2329 84,400,000 kwh, in 2329-2330 84,600,000 kwh, in 2330-2331 84,800,000 kwh, in 2331-2332 85,000,000 kwh, in 2332-2333 85,200,000 kwh, in 2333-2334 85,400,000 kwh, in 2334-2335 85,600,000 kwh, in 2335-2336 85,800,000 kwh, in 2336-2337 86,000,000 kwh, in 2337-2338 86,200,000 kwh, in 2338-2339 86,400,000 kwh, in 2339-2340 86,600,000 kwh, in 2340-2341 86,800,000 kwh, in 2341-2342 87,000,000 kwh, in 2342-2343 87,200,000 kwh, in 2343-2344 87,400,000 kwh, in 2344-2345 87,600,000 kwh, in 2345-2346 87,800,000 kwh, in 2346-2347 88,000,000 kwh, in 2347-2348 88,200,000 kwh, in 2348-2349 88,400,000 kwh, in 2349-2350 88,600,000 kwh, in 2350-2351 88,800,000 kwh, in 2351-2352 89,000,000 kwh, in 2352-2353 89,200,000 kwh, in 2353-2354 89,400,000 kwh, in 2354-2355 89,600,000 kwh, in 2355-2356 89,800,000 kwh, in 2356-2357 90,000,000 kwh, in 2357-2358 90,200,000 kwh, in 2358-2359 90,400,000 kwh, in 2359-2360 90,600,000 kwh, in 2360-2361 90,800,000 kwh, in 2361-2362 91,000,000 kwh, in 2362-2363 91,200,000 kwh, in 2363-2364 91,400,000 kwh, in 2364-2365 91,600,000 kwh, in 2365-2366 91,800,000 kwh, in 2366-2367 92,000,000 kwh, in 2367-2368 92,200,000 kwh, in 2368-2369 92,400,000 kwh, in 2369-2370 92,600,000 kwh, in 2370-2371 92,800,000 kwh, in 2371-2372 93,000,000 kwh, in 2372-2373 93,200,000 kwh, in 2373-2374 93,400,000 kwh, in 2374-2375 93,600,000 kwh, in 2375-2376 93,800,000 kwh, in 2376-2377 94,000,000 kwh, in 2377-2378 94,200,000 kwh, in 2378-2379 94,400,000 kwh, in 2379-2380 94,600,000 kwh, in 2380-2381 94,800,000 kwh, in 2381-2382 95,000,000 kwh, in 2382-2383 95,200,000 kwh, in 2383-2384 95,400,000 kwh, in 2384-2385 95,600,000 kwh, in 2385-2386 95,800,000 kwh, in 2386-2387 96,000,000 kwh, in 2387-2388 96,200,000 kwh, in 2388-2389 96,400,000 kwh, in 2389-2390 96,600,000 kwh, in 2390-2391 96,800,000 kwh, in 2391-2392 97,000,000 kwh, in 2392-2393 97,200,000 kwh, in 2393-2394 97,400,000 kwh, in 2394-2395 97,600,

The rate of consumers to population at the end of 1921 was 24.5 per cent. which compares well with other systems. The general growth in the load and in the number of consumers has been comparatively steady making due allowance for the abnormal conditions following the armistice in November, 1918, and the indications are that the demands are still increasing.

At the present time the Wasdell's System is loaded to the full capacity of the plant, if the supply of about 400 horse-power to the Severn System is included. If this load be withdrawn from the Severn System and used on the Wasdell's System it would probably take care of the normal growth of the system for three or four years but before then the future source of power supply must be considered.

Capital Costs

The following table shows the progressive capital costs of the Wasdell's System (cents omitted):

Capital Assets	Fiscal Year Ending October 31st,				
	1914	1915	1916	1917	1918
Power Development	\$112,832	\$132,907	\$136,658	\$139,913	\$140,563
Transmission Lines	94,051	95,234	114,406	110,298	110,470
Transforming and Distributing Stations	3,444	13,430	13,637	14,520	14,735
Rural Lines	-	-	-	-	4,357
T o t a l	\$210,327	\$241,571	\$264,701	\$264,731	\$270,125





Table of Progressive Capital Costs (cont'd)

Capital Assets	Fiscal Year Ending October 31st.			
	1919	1920	1921	1922
Power Development	\$140,787	\$141,760	\$141,865	\$144,379
Transmission Lines	110,243	153,690	154,189	203,187
Transforming and Distributing Stations	14,736	26,213	26,909	31,485
Rural Lines	7,698	11,282	12,399	14,956
T o t a l	\$273,464	\$332,947	\$335,382	\$394,007

From this table it will be seen that the expenditures on this system in the several years were as follows:

1914	1915	1916	1917	1918	1919	1920	1921	1922
\$210,327	\$31,244	\$23,130	\$30	\$5,394	\$3,339	\$59,483	\$2,455	\$58,625

If the proposed betterments and extensions, for which an appropriation of \$35,000 was voted in 1923, have been or are carried out, the investment in the system at the close of the fiscal year 1923 will be approximately \$430,000. As \$25,000 of the appropriation for 1923 was for rural lines, if this amount be expended, the total investment in rural lines would be approximately \$40,000 on October 31st, 1923. A portion of this amount the Commission will doubtless recommend the Province to pay in accordance with the provisions of the Rural Hydro-Electric Distribution Act, 1921, as amended in 1923.

#### Power Development Constructed under Contract

The Engineers of the Commission estimated the cost of the Waddell's Falls Power Development at \$114,842.00. The Development was constructed under contract at a cost of \$113,000.00, and put into operation on October 6th, 1914. Since the commencement of operation, the Commission has installed additional equipment costing \$34,000.00, which together with the original cost



[illegible]

DATE	TIME	FROM	TO	TYPE	CLASS	STATUS	REMARKS
1954-10-10	10:00	100-100	100-100	100-100	100-100	100-100	100-100

pay in accordance with the provisions of the Naval Budget-  
 about the amount will be decided by the Naval Budget  
 approximately \$2,000,000 in 1933. A portion of this  
 is expected, the total investment in naval arms would be  
 the expenditure for 1933 and for 1934, it is estimated  
 that 1933 will be approximately \$20,000,000. At 1934, and at  
 1935, the investment in the system of the state of the  
 an expenditure of \$25,000,000 was voted in 1933, have been or are  
 It is estimated that the expenditure for 1933 will be

Insurance<sup>2</sup> being approximately equalized upon

The Engineers of the Commission estimated the cost of the work at \$100,000. The total cost was estimated at \$100,000. The total cost was estimated at \$100,000.

of \$113,000.00 makes a total investment in the plant of approximately \$147,000.00 as of June, 1923.

We have been informed by the Chief Engineer of the Commission that the expenditures made since 1914 were not included in the estimate of \$114,842.00 as above.

Capital Costs per Horse-power Developed

The fractional capital costs per rated plant horse-power developed for the years 1916 to 1922, inclusive, is shown in the following table:

Table of Capital Costs per Rated Plant Horse-power Developed					
Fiscal years ending October 31st					
	1914	1915	1916	1917	1918
Power Development	\$131.20	\$154.50	\$158.90	\$162.70	\$163.40
Transmission Lines	109.40	110.70	133.00	128.20	128.50
Transforming and Distributing Stations	4.00	15.60	15.80	16.90	17.10
Rural Lines	-	-	-	-	5.10
T o t a l	\$244.60	\$280.80	\$307.70	\$307.80	\$314.10

Table of Capital Costs per Rated Plant Horse-power Developed				
(continued)				
Fiscal years ending October 31st				
	1919	1920	1921	1922
Power Development	\$163.70	\$164.80	\$165.00	\$167.88
Transmission Lines	128.20	178.70	179.30	236.26
Transforming and Distributing Stations	17.10	30.50	31.30	36.61
Rural Lines	9.00	13.10	14.40	17.38
T o t a l	\$318.00	\$387.10	\$390.00	\$458.13

We direct Your Honour's attention to the comment of Mr. Francis at page 49 of his report, submitted herewith, with reference to the capital costs of the generating plant to October 31st, 1921, which is as follows:



CONFIDENTIAL

[illegible]

The following table shows the results of the analysis of variance for the effect of the type of soil on the growth of the plants.

These findings suggest that the use of a single, standardized, and validated instrument to assess the impact of a program is a more reliable and valid method than the use of multiple, non-standardized, and non-validated instruments.

102880 *Salmonella enteritidis* 14078 3423 201

Downloaded from <http://www.jstor.org/stable/2346277> on Tue, 27 Jun 2016 17:26:27 UTC

1984-1985 season (1984-1985)

[illegible]

DATE OF BIRTH: 08-19-1967      SEX: M

1944-1945

Year	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100
1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	

08.0000 00.0000 65.7900 20.0000 0.0000

to the extent of the information available to the Commission, the Commission is not aware of any other information that would indicate that the Commission's findings are incorrect.

Mr. Jensen is page 48 of the report, submitted herewith, also

RECEIVED AT THE OFFICE OF THE SECRETARY OF THE ARMY  
WASHINGTON, D. C. 20315

21st, 1921, which is as follows:

"The recorded capital costs of the generating plant at Wasdell's Falls show somewhat high construction costs even for such a small, low-head plant and now stand at about \$165 per horse-power, but this figure is not unreasonable."

Prior to the year 1917, the estimates voted by the Legislature do not give in detail the appropriations made for the several undertakings of the Commission.

Payments, however, on account of the appropriations appear to have been made to the Commission in pursuance of Orders-in-Council specifying the particular undertaking or object for which payments were made.

On April 19th, 1913, prior to which date the Commission had investigated, at the request of municipalities now in the Wasdell's System, the question of supply of electrical power, an Order-in-Council was passed directing the payment to the Commission of \$20,000 "on account of Simcoe Lines".

On October 31st, 1914, and November 20th, 1914, Orders-in-Council directed the payment to the Commission of \$20,000 and \$50,000 respectively on account of Wasdell's Falls. As no further advances appear to have been made to the Commission until 1917 specifically for the purposes of the Wasdell's System, the cost of \$264,701 of this undertaking to October 31st, 1916, was apparently to a large extent met out of other funds in the hands of the Commission. From 1917 to 1922 the appropriations, advances and expenditures on the system are shown in the following table:



The following table shows the amounts of the various appropriations, advances and expenditures on the part of the Commission from 1917 to 1922:

Year	Appropriations	Advances	Expenditures
1917	\$1,000,000	\$500,000	\$1,500,000
1918	\$1,200,000	\$600,000	\$1,800,000
1919	\$1,400,000	\$700,000	\$2,100,000
1920	\$1,600,000	\$800,000	\$2,400,000
1921	\$1,800,000	\$900,000	\$2,700,000
1922	\$2,000,000	\$1,000,000	\$3,000,000

The total amount of appropriations, advances and expenditures on the part of the Commission from 1917 to 1922 is \$10,000,000.

Year	Appropriation	Advance	Expended	Over-expended	Unexpended
1917	\$ 30,000	\$30,000	\$ 30	-	\$29,970
1918	1,000	1,000	5,394	\$ 4,394	-
1919	1,000	1,000	3,339	2,339	-
1920	90,000	50,000	59,483	9,483	-
1921	75,000	25,000	2,435	-	22,565
1922	120,000	60,900	58,625	-	2,275

The advance of \$30,000 in 1917 was made in pursuance of an Order-in-Council dated February 17th, 1917, ostensibly for "Waddell's System, L.T. Transmission Lines". As practically no expenditure on capital account for the system was made during the 1917 fiscal year, this advance of \$30,000 was used to replace monies expended by the Commission upon the system from funds held for other purposes, **COPY** or was employed by the Commission for other objects than the Waddell's System. Attention is also drawn to the fact that advances made for the system in the years 1918, 1919, 1920, 1921 and 1922 in each case differs materially from the amounts expended in these years. Comment upon the variation between advances and expenditures for and upon particular undertakings and the employment of funds voted and advanced for one object upon other works of the Commission is reserved for a General Report upon the subject.

#### Reserve for Renewals

The balance in the reserve for renewals account at October 31st, 1922, amounted to \$35,564.12.

The reserve for renewals was provided through the inclusion in the cost of power to the municipalities of an annual charge of  $3\frac{1}{2}\%$  on the capital investment, together with interest at 4%





per annum on the balance of the reserve to October 31st, 1919. During 1920, upon the advice of its Engineers, the Commission reduced the annual renewal rate from  $3\frac{1}{2}\%$  to  $2\%$ , while the interest rate of  $4\%$  remained unchanged.

The accounts of the Commission were so adjusted that the rate of  $2\%$  was made effective from the inception of the system to October 31st, 1919, and this adjustment resulted in a reduction of \$20,585.60 in the renewal reserve, which was applied to the following municipalities as a reduction in the cost of power supplied to them during this period:

Beaverton	\$ 4,786.70
Brechin	3,659.49
Cannington	4,899.05
Sunderland	3,733.72
Woodville	3,806.64
Total	<u>\$20,585.60</u>

The annual rate of  $2\%$  was determined by a re-classification of the properties as reflected in the book accounts at October 31st, 1920, made by the Engineering Department of the Commission.

In December, 1922, the Commission decided to reduce the depreciation rate for this system from  $2\%$  to  $1.5\%$  and to make this reduction retroactive to the date of first operation.

The revision was made by the Commission and the accounts of the Commission for the fiscal year ending October 31st, 1921, show that it resulted in a reduction as of October 31st, 1921, in the renewal reserve of \$10,578.06, of which \$5,500.76 has been applied as a credit to the municipalities and \$5,077.30 as an addition to the reserve for contingencies. This reduction has the effect of decreasing the cost of power for each year in which



that amount to the balance of the revenue for October 1911.  
 During 1911, upon the advice of the Engineer, the Commission  
 retained the annual interest rate from 5 1/2 to 5% until the interest  
 rate of 4% became necessary.  
 The members of the Commission were so situated that the  
 rate of 4% was not effective from the beginning of the year  
 in October 1911, 1912, and this adjustment resulted in a saving  
 for of \$20,000.00 in the annual interest, which was applied to  
 the following amortization as a reduction in the cost of power  
 supplied in the year 1911-1912:

Interest	\$ 4,100.00
Amortization	11,400.00
Depreciation	4,000.00
Operating	3,700.00
General	1,100.00
<b>Total</b>	<b>\$24,300.00</b>

COPY

The annual rate of 4% was determined by a re-estimate of the  
 of the properties as reflected in the new accounts of October  
 1911, 1912, made by the Engineer, members of the Commission.  
 In October, 1911, the Commission decided to reduce the  
 amortization rate for this period from 5 1/2 to 4 1/2 and to save  
 this reduction retrospective to the date of first application.  
 The revised rate was by the Commission and the savings  
 at the Commission for the three years ending October 1911, 1912,  
 1913, 1914 is estimated in a reduction of \$20,000.00.  
 In the revised account of \$12,400.00, or about \$2,400.00 as  
 was applied as a credit to the amortization and \$1,000.00 as  
 an addition to the reserve for contingencies. This reduction has  
 the effect of decreasing the cost of power for this year in which

provision was made for such reserve to all municipalities supplied with power by the Commission during such year, and pro tanto relieve of liability for unpaid balances those municipalities which have not paid to the Commission the full amount of power bills rendered them, gives credit balances to those that have, and, if other unit costs do not increase, will reduce the future annual price of power to all municipalities.

Expenditures charged to renewal reserve to October 31st, 1922, amounted to \$3,340.74 and the amount at the revised rate (including interest) credited to the account for the fiscal year ending on that date was \$7,366.01.

While our Consulting Engineer has reported in regard to the reserve for renewal, as at October 31st, 1921, this last reduction made by the Commission has not been reported upon by him and the general subject of reserve for renewals will be further dealt with in our General Report.

#### Reserve for Sinking Fund

All municipalities on the Masdell's System were relieved, by the Commission as permitted by the Act, from payment of sinking fund for a period of five years after power was first supplied to them, and from the dates that sinking fund collections commenced to October 31st, 1922, the amounts provided and included as a part of the cost of power, together with interest are as follows:



It is a well known fact that the Government of the United States has been for many years past, and is now more than ever, in the habit of making large appropriations for the purpose of carrying on a system of espionage and surveillance against the people of this country. This system of espionage and surveillance is carried on in a most systematic and organized manner, and is supported by a large and powerful apparatus of spies and informants. The Government of the United States has been for many years past, and is now more than ever, in the habit of making large appropriations for the purpose of carrying on a system of espionage and surveillance against the people of this country. This system of espionage and surveillance is carried on in a most systematic and organized manner, and is supported by a large and powerful apparatus of spies and informants.

your ending on that date was \$7,366.61.

Further details with in our General Report.

with interest are as follows:

Municipalities	\$7,720.56
Companies	8,758.22
Rural Lines	860.81
Interest at 4%	<u>663.10</u>

T o t a l      \$18,022.69

The above shows the aggregate amount of sinking fund collectible at October 31st, 1922, from the five municipalities which had taken power for six years or longer, the initial charge being made in the sixth year's power cost.

The sinking fund reserve of the Wasdell's System at October 31st, 1921, included the following amounts as applying to power supplied the Severn System:

Year ending October 31st, 1920	\$1,788.52
Year ending October 31st, 1921	<u>1,548.59</u>
T o t a l	<u>\$3,337.11</u>

During the year 1920, power was furnished the Severn System at a fixed rate of \$25.00 per horse-power. After providing for sinking fund of \$1,788.52 on the portion of works used in the generation and transmission of such power, the Wasdell's System incurred a loss of \$2,295.00. It will, therefore, be noted that the flat rate of \$25.00 per horse-power was inadequate to provide for operating expenses and fixed charges inclusive of sinking fund in this year.

In the year 1921, when the Severn System was supplied power at actual cost, and paid as a part of such cost sinking fund charges in the amount of \$1,548.59, the



Interest on 4 1/2	887.10
Normal mine	880.91
Overhead	8,788.25
Total	\$10,556.26

The above shows the aggregate amount of sinking fund charges for the year 1931. The sinking fund charges for the year 1931 are shown in the following table:

Year ending March 31, 1931	\$1,744.11
Year ending March 31, 1932	\$1,744.11

COPY

During the year 1931, power was furnished the

system at a fixed rate of \$25.00 per horse-power.

After providing for sinking fund of \$1,744.11 for the year

at which time the commission was authorized to issue bonds

the sinking fund was increased to \$1,744.11 for the year

1932. It was also found that the sinking fund for the year

power was inadequate to provide for operating expenses and

fixed charges inclusive of sinking fund in this year.

In the year 1931, when the power system was

supplied power at actual cost, and paid on a part of which

cost sinking fund charges in the amount of \$1,848.59, the

question arises whether or not the municipalities on the Severn System are acquiring an interest in the Wasdell's System with the payment of sinking fund.

In this same connection our Accountants have made the following comment:

"Equity of System Receiving Power  
or System Furnishing Power"

Where there is an interchange of power between Systems and the charge for such power is on the basis of cost the consumers on the lines of the system receiving and using the power will be in the position of paying for and acquiring equities in the plant and property of the System where the power is generated to the extent that provisions for sinking funds are made".

Reserve for Contingencies

The Commission established a reserve for contingencies to provide for losses not arising at regular intervals or not wholly applicable to the period in which they were incurred.

The reserve is built up by:

- (a) Charges to the municipalities, to sundry customers and to the Severn System at the rate of 25¢ per horse-power per annum included as part of the cost of power delivered to them.
- (b) Profit from the sale of equipment.
- (c) Interest at 4% per annum.

At October 31st, 1932, the balance in the reserve account was \$6,068.13 made up as follows:



generation station situated at the ...  
system with the payment of ...  
In this connection our accountants have made the

following statement:

Summary of Assets and Liabilities  
at the end of the year 1924

There is an ...  
system and the charge for each power is on the  
basis of ...  
power is generated in the ...  
for sinking lands are made.

**COPY**

The Commission ...  
to provide the ...  
and ...  
incurred.

The reserve is built up by:

(a) ...  
customers and to the ...  
included as part of the cost of power  
delivered is ...

(b) Profit from the sale of equipment.

(c) Interest at 4% per annum.

At the end of 1924, the balance in the reserve account

was \$6,000.00 as follows:

COPY FOR ENCLOSURE TO

Amounts included as part  
of the cost of power delivered -

To municipalities	\$ 748.66	
To private companies and Savern System	<u>1,309.26</u>	\$2,057.92
Net profit on sales of aluminum cable and sundry equipment		12,614.70
Interest at 4% per annum		1,838.21
Amount added on account of credit from Renewal Reserve on revision of depreciation rate		<u>5,077.30</u>
Total Credits		\$21,588.13

Deduct -

Expenditures in 1920 applied  
against the cost of stringing  
aluminum cable on a large  
portion of the system \$14,519.07

To meet losses in 1920 and 1922  
on power sold to private  
companies \$1,000.93 15,520.00

Balance as at October 31st, 1922 \$ 5,068.13

Mr. Francis in his report to us, transmitted here-  
with, in dealing with the contingency reserve account as at  
October 31st, 1921, stated:

"Considering the heavy losses which might be  
occasioned through catastrophe, it is felt  
that the total amount at the credit of this  
fund, namely \$241.00, should be augmented by  
increasing the small allowance for contingencies,  
and when a reserve of say \$5,000 to \$10,000  
will have been built up, the rates can be re-  
adjusted to suit the conditions found after  
several further years of experience."



Amounts included in Part  
of the cost of power delivered

\$ 755.00

To maintain  
the private companies and  
power system

\$2,000.00

1,500.00

Not profit on sales of aluminum  
cable and other equipment

\$2,500.00

Interest on all loans

\$1,000.00

Amount paid in advance of receipt  
from various sources in connection  
with construction work

\$1,000.00

\$21,000.00

Total Credits

Balance

Interest on all loans applied  
against the cost of stringing  
aluminum cable on a large  
portion of the system

\$10,000.00

To meet interest on all loans  
on power sold to private  
companies

\$1,000.00

1,000.00

\$1,000.00

Balance of all credits, 1941

It should be the policy of the Government

with, in dealing with the construction program as an

entirely new project.

Considering the heavy losses which might be  
occasioned through catastrophe, it is felt  
that the total amount of the credit of this  
fund, namely \$21.00, should be expended in  
liquidating the small amounts for construction,  
and when a reserve of say \$5,000 to \$10,000  
will have been built up, the money can be  
adjusted to suit the conditions from time  
to time further years of experience."

The sum of \$5,077.30 transferred to contingency reserve from the reserve for renewals, following the revision of depreciation rates adopted in December, 1922, and interest accruals, have brought the contingency reserve to an amount somewhat in excess of Mr. Francis' minimum recommendation.

#### Accounts with Municipalities

Accounts with municipalities are divided by the Commission as follows:

- (a) Power Accounts Receivable
- (b) Due by or to municipalities in respect of the cost of power furnished them as determined under the Power Commission Act.

#### (a) Power Accounts Receivable

At October 31st, 1921, the balance of power accounts receivable amounted to \$6,665.12. These accounts represent unpaid balances in respect of interim power bills which are paid currently by the municipalities, and were all paid prior to September 20th, 1922, the date on which these accounts were examined by our Accountants.

#### (b) Due by Municipalities in respect of the cost of power

At the close of each fiscal year, the interim power bills rendered monthly are adjusted to meet the operating cost of the system, as provided by the Power Commission Act.

It does not appear to be the practice of the municipalities to pay in cash these additional charges, but



There are no other persons who are known to have been in contact with the subject of this report.

1960-1961

Experiments of the author<sup>1</sup> have shown that the

李 錦 興 香 味 美 妙 重 慶 總 經 銷

(a)  $\frac{d}{dt} \left( \frac{1}{2} m v^2 \right) = \mathbf{F} \cdot \mathbf{v}$

1. The first part of the document is a list of names and addresses, which appears to be a directory or a list of contacts. The names are written in a cursive script, and the addresses are listed below them.

Y902

At December 31st, 1921, the balance of power accounts  
twelve months ending on 31st Dec. 1921. These accounts represent  
actual balance in respect of interest on all bills and  
paid monthly by the beneficiaries, and were all paid  
in December 1921. 1922, the date on which the accounts were  
examined by the Accountants.

PROPERTY OF THE DEPARTMENT OF WAR (4)  
 THIS DOCUMENT IS LOANED TO YOU BY THE DEPARTMENT OF WAR

As the time of your visit approaches, the Bureau will be in a position to advise you of the date and time of the hearing. The Bureau will also be in a position to advise you of the date and time of the hearing. The Bureau will also be in a position to advise you of the date and time of the hearing.

COPY FOR ENCLOSURE TO

instead the Commission increases the interim rates in subsequent periods and thereby reduces the accumulated deficits of prior periods.

Regarding the payment of these deficits, section 3a of the Power Commission Act provides that:

"The Commission may from time to time during the first three years after any municipality shall first begin to take power from the Commission extend the time for payment of the sums payable by any municipality ....."

A list of the balances owing by or at the credit of the municipalities on the Wasdell's System at October 31st, 1922, is as follows:

	<u>Debit Balances</u>	<u>Credit Balances</u>
Beaverton		\$1,639.84
Brechin	\$2,467.99	
Cannington	1,204.96	
Kirkfield		42.41
Sunderland	1,744.78	
Woodville	1,154.86	
Port Perry	47.40	
Uxbridge	14.11	
<b>Total</b>	<b>\$6,634.10</b>	<b>\$1,682.25</b>

### Results of Operations

Power is supplied the municipalities on the Wasdell's System on a cost basis as outlined in the Power Commission Act. The cost of such power consists of:

1. Operating and maintenance expenses.
2. Interest on monies invested in the works of the system.
3. Provision for the renewal of the works.
4. Sinking fund on a thirty year basis to repay the investment in the system.



© 2000 Blackwell Science Ltd *Journal of Internal Medicine* 247: 395–402

.....

A list of the balances owing by or to the credit

© 2000 Blackwell Science Ltd *Journal of Internal Medicine* 247: 369–375

21st, 1897, 10th, 11th, 12th, 13th, 14th, 15th, 16th, 17th, 18th, 19th, 20th, 21st, 22nd, 23rd, 24th, 25th, 26th, 27th, 28th, 29th, 30th, 31st

1944-1945  
 1946-1947  
 1948-1949  
 1950-1951  
 1952-1953  
 1954-1955  
 1956-1957  
 1958-1959  
 1960-1961  
 1962-1963  
 1964-1965  
 1966-1967  
 1968-1969  
 1970-1971  
 1972-1973  
 1974-1975  
 1976-1977  
 1978-1979  
 1980-1981  
 1982-1983  
 1984-1985  
 1986-1987  
 1988-1989  
 1990-1991  
 1992-1993  
 1994-1995  
 1996-1997  
 1998-1999  
 2000-2001  
 2002-2003  
 2004-2005  
 2006-2007  
 2008-2009  
 2010-2011  
 2012-2013  
 2014-2015  
 2016-2017  
 2018-2019  
 2020-2021  
 2022-2023  
 2024-2025  
 2026-2027  
 2028-2029  
 2030-2031  
 2032-2033  
 2034-2035  
 2036-2037  
 2038-2039  
 2040-2041  
 2042-2043  
 2044-2045  
 2046-2047  
 2048-2049  
 2050-2051  
 2052-2053  
 2054-2055  
 2056-2057  
 2058-2059  
 2060-2061  
 2062-2063  
 2064-2065  
 2066-2067  
 2068-2069  
 2070-2071  
 2072-2073  
 2074-2075  
 2076-2077  
 2078-2079  
 2080-2081  
 2082-2083  
 2084-2085  
 2086-2087  
 2088-2089  
 2090-2091  
 2092-2093  
 2094-2095  
 2096-2097  
 2098-2099  
 2100-2101  
 2102-2103  
 2104-2105  
 2106-2107  
 2108-2109  
 2110-2111  
 2112-2113  
 2114-2115  
 2116-2117  
 2118-2119  
 2120-2121  
 2122-2123  
 2124-2125  
 2126-2127  
 2128-2129  
 2130-2131  
 2132-2133  
 2134-2135  
 2136-2137  
 2138-2139  
 2140-2141  
 2142-2143  
 2144-2145  
 2146-2147  
 2148-2149  
 2150-2151  
 2152-2153  
 2154-2155  
 2156-2157  
 2158-2159  
 2160-2161  
 2162-2163  
 2164-2165  
 2166-2167  
 2168-2169  
 2170-2171  
 2172-2173  
 2174-2175  
 2176-2177  
 2178-2179  
 2180-2181  
 2182-2183  
 2184-2185  
 2186-2187  
 2188-2189  
 2190-2191  
 2192-2193  
 2194-2195  
 2196-2197  
 2198-2199  
 2200-2201  
 2202-2203  
 2204-2205  
 2206-2207  
 2208-2209  
 2210-2211  
 2212-2213  
 2214-2215  
 2216-2217  
 2218-2219  
 2220-2221  
 2222-2223  
 2224-2225  
 2226-2227  
 2228-2229  
 2230-2231  
 2232-2233  
 2234-2235  
 2236-2237  
 2238-2239  
 2240-2241  
 2242-2243  
 2244-2245  
 2246-2247  
 2248-2249  
 2250-2251  
 2252-2253  
 2254-2255  
 2256-2257  
 2258-2259  
 2260-2261  
 2262-2263  
 2264-2265  
 2266-2267  
 2268-2269  
 2270-2271  
 2272-2273  
 2274-2275  
 2276-2277  
 2278-2279  
 2280-2281  
 2282-2283  
 2284-2285  
 2286-2287  
 2288-2289  
 2290-2291  
 2292-2293  
 2294-2295  
 2296-2297  
 2298-2299  
 2300-2301  
 2302-2303  
 2304-2305  
 2306-2307  
 2308-2309  
 2310-2311  
 2312-2313  
 2314-2315  
 2316-2317  
 2318-2319  
 2320-2321  
 2322-2323  
 2324-2325  
 2326-2327  
 2328-2329  
 2330-2331  
 2332-2333  
 2334-2335  
 2336-2337  
 2338-2339  
 2340-2341  
 2342-2343  
 2344-2345  
 2346-2347  
 2348-2349  
 2350-2351  
 2352-2353  
 2354-2355  
 2356-2357  
 2358-2359  
 2360-2361  
 2362-2363  
 2364-2365  
 2366-2367  
 2368-2369  
 2370-2371  
 2372-2373  
 2374-2375  
 2376-2377  
 2378-2379  
 2380-2381  
 2382-2383  
 2384-2385  
 2386-2387  
 2388-2389  
 2390-2391  
 2392-2393  
 2394-2395  
 2396-2397  
 2398-2399  
 2400-2401  
 2402-2403  
 2404-2405  
 2406-2407  
 2408-2409  
 2410-2411  
 2412-2413  
 2414-2415  
 2416-2417  
 2418-2419  
 2420-2421  
 2422-2423  
 2424-2425  
 2426-2427  
 2428-2429  
 2430-2431  
 2432-2433  
 2434-2435  
 2436-2437  
 2438-2439  
 2440-2441  
 2442-2443  
 2444-2445  
 2446-2447  
 2448-2449  
 2450-2451  
 2452-2453  
 2454-2455  
 2456-2457  
 2458-2459  
 2460-2461  
 2462-2463  
 2464-2465  
 2466-2467  
 2468-2469  
 2470-2471  
 2472-2473  
 2474-2475  
 2476-2477  
 2478-2479  
 2480-2481  
 2482-2483  
 2484-2485  
 2486-2487  
 2488-2489  
 2490-2491  
 2492-2493  
 2494-2495  
 2496-2497  
 2498-2499  
 2500-2501  
 2502-2503  
 2504-2505  
 2506-2507  
 2508-2509  
 2510-2511  
 2512-2513  
 2514-2515  
 2516-2517  
 2518-2519  
 2520-2521  
 2522-2523  
 2524-2525  
 2526-2527  
 252

complicated to address?

Power is supplied to the municipalities on the  
municipalities' system on a basis as outlined in the above  
documentary. The cost of the power is paid by the

1. Operating and maintenance expenses.
2. Interest on money invested in the water works.
3. Provision for the renewal of the works.
4. Sinking fund on a thirty year basis to repay the investment in the water works.

Power is also supplied the Severn System on a cost basis and the Crushed Stone Company, Limited, at fixed rates. Up to the fiscal year ending October 31st, 1921, the Severn System received power at a flat rate of \$25.00 per horse-power.

The operating account of the system, as stated in the published accounts of the Commission for the five years ending October 31st, 1922, is as follows:

Particulars	Year ending October 31st,				
	1918	1919	1920	1921	1922
<b>Revenue</b>					
From Municipalities	\$19,975	\$16,215	\$21,650	\$21,588	\$21,001
From Severn System	9,125	15,509	12,417	12,364	
From Private Companies	-	-	5,097	8,440	20,828
<b>Total Revenue</b>	<b>\$29,100</b>	<b>\$31,724</b>	<b>\$39,164</b>	<b>\$42,392</b>	<b>\$41,829</b>
<b>Less -</b>					
Operating Expenses	9,018	10,680	14,733	15,369	17,351
<b>Balance</b>	<b>\$20,082</b>	<b>\$21,044</b>	<b>\$24,431</b>	<b>\$27,023</b>	<b>\$24,478</b>
<b>Less -</b>					
Fixed Charges					
Interest	\$10,631	\$11,517	\$13,526	\$14,672	\$13,485
Provision for Renewals	9,302	9,302	8,356	6,449	4,934
Provision for Sinking Fund	-	-	5,297	5,661	5,521
Provision for Contingencies	149	325	253	241	956
<b>Total Fixed Charges -</b>	<b>\$20,082</b>	<b>\$21,044</b>	<b>\$25,014</b>	<b>\$27,023</b>	<b>\$24,896</b>
<b>Loss - transferred to reserve for contingencies -</b>			\$563		\$418
<b>Total horse-power billed</b>	<b>597.4</b>	<b>901.1</b>	<b>910.0</b>	<b>962.5</b>	<b>955.7</b>
<b>Cost per horse-power billed</b>	<b>\$48.71</b>	<b>\$35.21</b>	<b>\$43.67</b>	<b>\$44.04</b>	<b>\$44.20</b>



It is also applied the system on a cost basis  
the fiscal year ending October 31st, 1931, the revenue system  
transferred power at a flat rate of \$25.00 per horse-power.  
The resulting account of the system, as stated in the  
October 31st, 1932, is as follows:

Particulars				Year ending October 31st,	
				1931	1932
Revenue -					
From sale of power	21,750	21,750	21,750	21,750	21,750
From sale of water	8,125	8,125	8,125	8,125	8,125
From sale of land	-	-	-	-	-
Total Revenue	29,875	29,875	29,875	29,875	29,875
Loss -					
Operating Expenses	7,015	7,015	7,015	7,015	7,015
Depreciation	10,000	10,000	10,000	10,000	10,000
Loss -					
Interest	10,000	10,000	10,000	10,000	10,000
Provision for depreciation	2,000	2,000	2,000	2,000	2,000
Provision for working capital	-	-	-	-	-
Provision for contingencies	100	100	100	100	100
Total Loss	12,100	12,100	12,100	12,100	12,100
Loss -					
Provision for depreciation	2,000	2,000	2,000	2,000	2,000
Provision for contingencies	100	100	100	100	100
Total Loss	2,100	2,100	2,100	2,100	2,100

The losses shown above as transferred to the contingency reserve were sustained in supplying power to companies. Losses arising in this connection for 1921 have been charged against the various municipalities on the system. The profits or losses arising from the sale of power to the Severn System have also been applied against the municipalities.

The operating accounts from the inception of the system to October 31st, 1921, as stated in the published accounts of the Commission are subject to reductions made in 1920 and 1922 in renewal charges. This reduction has the effect of reducing the fixed charges as shown by the aforesaid operating account and also the final costs per horse-power as follows:

	1918	1919	1920	1921
Operating expenses and fixed charges per operating account	\$29,100	\$31,723	\$39,746	\$42,392
Less - Reduction in Renewal Charges	5,315	5,313	1,485	1,613
Adjusted Costs	\$23,785	\$26,410	\$38,261	\$40,779
Horse-power billed	597.4	901.1	910.0	962.5
Cost per horse-power billed as adjusted	\$39.82	\$29.31	\$42.04	\$42.36

From the operating account as adjusted, it will be noted that the cost per horse-power billed decreased considerably during 1919 and increased during 1920 and 1921. The following table showing the detailed costs per horse-power billed





illustrates in what respect and to what extent the costs have varied:

	1918	1919	1920	1921	1922
Operation	\$6.36	\$5.94	\$6.71	\$8.01)	
Maintenance	4.25	1.93	3.92	3.57)	\$18.15
Overhead & General Expenses	4.50	3.99	5.57	4.38)	
Interest	17.82	12.79	14.86	15.24	14.11
Renewals	6.64	4.41	4.89	5.02	5.16
Sinking Fund	-	-	5.81	5.88	5.78
Contingencies	.25	.25	.28	.28	1.00
	\$39.82	\$29.31	\$42.04	\$42.36	\$44.20

The following is a table of the actual horse-power loads taken by the municipalities as compared with the estimated load upon which the Commission based its estimated cost for supplying power to the municipalities:

Municipality	Date Power was First Taken	Yearly Minimum Load H.P.	Yearly Maximum Load H.P.	Average Yearly Load to Oct. 31/21 H.P.	Estimated Load Required.
Beaverton	Oct. 1914	53.5	107.4	78.0	250.0
Breckin	Dec. 1914	30.4	46.6	36.7	50.0
Cannington	Oct. 1914	50.2	81.1	64.4	175.0
Kirkfield	June 1920	13.9	13.9	13.9	50.0
Sunderland	Oct. 1914	24.0	49.5	40.0	80.0
Woodville	Oct. 1914	35.9	57.2	42.8	70.0
				275.0	675.0





The estimated loads exceeded and actual average yearly loads by approximately 399.2 horse-power or 144%.

The following is a table of the estimates as submitted to the municipalities on the Wasdell's System as compared with the actual cost of power supplied during the full year periods of operation:

Municipality	Yearly Minimum Actual Cost per H.P.	Yearly Maximum Actual Cost per H.P.	Yearly Average Actual Cost per H.P.	Estimated Cost pre- pared by Hydro	Per cent. of Actual Cost over Estimated Cost
Beaverton	\$20.42	\$71.70	\$48.92	\$27.99	74
Brechin	28.04	93.66	69.69	35.29	97
Cannington	25.86	77.42	53.51	33.95	57
Kirkfield	70.65	70.65	70.65	45.00	57
Sunderland	35.42	94.41	68.28	44.54	53
Woodville	31.79	84.07	63.82	41.91	52

As shown by the foregoing, the actual cost has exceeded the estimated cost in all of the municipalities on the system.

The further revision of renewal reserve rates from 2% to 1.5% made by the Commission in December 1922, as hereinbefore noted, resulting in a credit to the municipalities of \$6,500.76, has the effect of in a slight degree reducing the annual cost of power from the inception of the system and accordingly renders the figures shown in the foregoing table subject to amendment.



WIVANN SPOONER JAN 30N LAM DELORDO ALSO ASSUMES WIT

...found by approximately 2.98% vitaminization 3.98% more-power to 1441.

The following is a table of the estimated

doi:10.1371/journal.pone.0121014.g004

which was left and which was left to be done and

10011570 10

Year	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100
1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	

As shown in the figure, the results of the analysis are as follows:

and no notice to move and to him and then he said to me

### ● 附錄 1

It must be noted however that no further revision of the latter is required.

© 1997 by the American Psychological Association, 0893-3200/97/\$12.00 DOI: 10.1037/0893-3200.11.4.475

20. Notwithstanding any other law or regulation, the Commission shall have the authority to

U.S. GOVERNMENT PRINTING OFFICE: 1970

has not yet had to set foot on the north shore to see how

Copyright © 2004 by John Wiley & Sons, Inc.

● 3 行 0 個 3 行 0 個 0 個 3 行 0 個 0 個

Sale of Power to the Severn System

The following table shows the revenue received by the Waddell's System from the sale of power at a flat rate to the Severn System, together with the expenses applicable thereto for the three years ending October 31st, 1920 (cents omitted), before giving effect to the reduction in the renewal rate:

	1918	1919	1920
Revenue	\$9,125	\$15,509	\$12,417
Operating Expenses and Fixed Charges	12,312	14,920	14,712
Profit or Loss	\$3,187	\$ 589	\$2,295

Horse-power Billed	382.8	613.4	492.1
Cost per Horse-Power Billed	\$25.15	\$25.28	\$25.23

# - Average horse-power billed, reduced by line loss thereby increasing the flat rate of \$25.00

The profits and losses shown above have been credited or charged against the municipalities on the system. From the date power was first supplied the Severn System, to October 31st, 1917, a profit of \$7,449.00 was realized which when taken into consideration with the profits and losses shown above results in a net profit of \$2,606.00 which was credited to the municipalities and resulted in a slight reduction in the cost of power to them over the period from September 1916 to October 31st, 1920.



Cost of Service - Hydro-Electric Supply

The following table shows the estimated cost of the Hydro-Electric Supply from the sale of power at a flat rate to the various classes of service, together with the estimated operating expenses for the three years ending December 31, 1920 (1921 estimate), before giving effect to the reduction in the renewal rates.

1920	1921	1922
Fixed charges	12,412	12,412
Operating expenses	12,412	12,412
Total	24,824	24,824

1920	1921	1922
12,412	12,412	12,412
12,412	12,412	12,412
24,824	24,824	24,824

COPY

5 - average net-peak power plant, reduced by line loss thereby increasing the flat rate of \$22.00

The Hydro-Electric Supply Commission has been authorized to supply power at a flat rate to the various classes of service, together with the estimated operating expenses for the three years ending December 31, 1920 (1921 estimate), before giving effect to the reduction in the renewal rates.

Sale of Power to Companies

The Commission began supplying power to the Crushed Stone Company, Limited, in the fiscal year ending October 31st, 1920, under terms of a contract for a period of five years from April 22nd, 1920, with extension privileges, at a rate of \$1.00 per month per horse-power of maximum demand, as a service charge, plus a consumption charge per kilowatt hour on a differential basis.

The following shows the revenue received from the sale of power to the Crushed Stone Company, Limited, with the relative operating expenses and fixed charges for the two years ending October 31st, 1921, before giving effect to the reduction in the renewal rates:

	1920	1921
Revenue	\$5,097.00	\$8,440.00
Operating Expenses and Fixed Charges	5,679.00	10,755.00
Loss -	\$582.00	\$2,315.00

The loss for 1920 was transferred to the contingency reserve, while the loss for 1921 was charged to the various municipalities on the system in proportion to the amounts paid by them in respect of maintenance and certain operating costs of the system.

A loss of \$418.25 in the year ending October 31st, 1922, was debited to the contingency reserve.



\_\_\_\_\_

The Commission began supplying power to the Granddug

These findings, limited, in the present case, to the 1980s, suggest that

ALL INFORMATION CONTAINED HEREIN IS UNCLASSIFIED

From 1991 to 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673,

U.S. DEPARTMENT OF COMMERCE

service manager, plus a commission change per kilometer.

on a different basis.

ALL INFORMATION CONTAINED HEREIN IS UNCLASSIFIED

ALL INFORMATION CONTAINED HEREIN IS UNCLASSIFIED

100-443887-100

[illegible][illegible][illegible]

ALL INFORMATION CONTAINED HEREIN IS UNCLASSIFIED

RECEIVED JUL 10 1964

unpublished in the *Journal of the Royal Society of Medicine*.

ALL INFORMATION CONTAINED HEREIN IS UNCLASSIFIED EXCEPT WHERE SHOWN OTHERWISE

• 1980-1981 •

ALL INFORMATION CONTAINED HEREIN IS UNCLASSIFIED

was dated to the contemporary recovery.

Rural Lines

At October 31st, 1922, rural lines on the Vasey's System were operated by Beaverton, Brechin, Sunderland, Woodville and Cannington.

These municipalities collect the revenue, maintain the lines and pay the Commission interest and sinking fund on the investment.

The interest and sinking fund collected on these rural lines for the five years ending October 31st, 1922, are as follows:

	Interest	Sinking Fund	Total
1918	\$100.00	\$ 29.03	\$129.03
1919	478.56	140.31	618.85
1920	583.29	199.39	782.68
1921	743.60	219.63	963.23
1922	837.52	249.38	1,086.90
Total -	\$2,742.95	\$837.76	\$3,580.71

Relations with the Town of Orillia

Previous to 1899 Orillia obtained its electrical energy from a steam plant. In 1899 the Town decided to use water power for this development and chose a site at Ragged Rapids, on the Severn River, about twenty miles from the Town. The Town leased the necessary water powers and privileges and under authority obtained from the Provincial Government proceeded with the development. Originally the Town had the





right to distribute and sell electrical power within a five mile radius of the town, but a subsequent enactment increased this radius to twenty-five miles. The plant was completed after many setbacks in 1902. Owing to the construction of the Severn Division of the Trent Valley Canal by the Dominion Government, the town was asked to move its plant from Ragged Rapids to a new location at Swift Rapids. The Dominion Government undertook to build, at its own expense, a dam at the new site. The new work was proceeded with and was still in course of construction when war broke out. The plant was installed in 1917 at a stated cost of \$114,000. exclusive of building and development which were constructed by the Federal Government.

COPY  
In 1914 the Commission instituted a campaign with the view to absorbing the Orillia System. Negotiations between the Commission and the town went on for some time and various offers were submitted and considered. The final offer of \$225,000., which did not include the cost of the generators, etc. which had to be subsequently installed, was submitted to the vote of the electors on May 22nd, 1916. The by-law was defeated 79 for and 513 against.

#### Agreements with Orillia

On December 9th, 1919, an agreement was entered into with the Orillia Commission for a supply of power. This agreement was approved by Order-in-Council, dated April 28th, 1920.

This is a reciprocal agreement whereby each of the systems gives the other first call on any surplus of power



which is distributed and will be distributed to the  
 this action of the law, but a separate action is required  
 this action is to be taken. The plan was completed after  
 many sessions in 1902. Owing to the completion of the  
 system of the Great Valley Canal by the  
 government, the town was moved to move the plant from  
 to a new location at the same place. The location system  
 was completed to build, at the same expense, a dam at the new  
 place. The new dam was completed with and was still in  
 the construction when the town was moved. The plant was  
 1917 at a stated cost of \$14,000, exclusive of building and  
 equipment which was furnished by the United States.  
 In 1918 the plant was moved to a new location and  
 view to increasing the output. Negotiations between the  
 government and the town were for some time and various offers  
 were submitted and accepted. The final offer of \$14,000,  
 which did not include the cost of the government, was  
 and to be subsequently included, was submitted to the town  
 by the citizens of May 1918, 1918. The plan was  
 to be and his family.

INDUSTRIAL DESIGNATION

On December 12, 1918, an agreement was entered into with  
 the United States for a supply of power. This agreement  
 was approved by the Federal Reserve Bank on 11, 1918.  
 This is a preliminary agreement whereby each of the system  
 gives the other first call on any surplus of power.

it has available, and is binding for a period of 15 years from the 1st November, 1916. We are informed by Mr. T. G. James that the Orillia System under this arrangement has available, at most times, 2000 horse-power for Hydro purposes, and in his estimation this amount will be available for some years to come. Sub-section (c) of the agreement provides that the Power Commission is "to purchase from the corporation for \$10,000. with interest at 6 per cent. per annum from 1st November, 1916, that part of the transmission line now owned by the corporation connecting the Big Chute development with the corporation's abandoned plant at Ragged Rapids". The Power Commission subsequently carried out this part of the contract.

In addition to the above, the Power Commission has a subsequent contract with Orillia, dated September 1st, 1922, whereby 800 horse-power at a price of one-quarter cent ( $\frac{1}{4}$ ) per kilowatt is reserved for the Power Commission until September 1st, 1923.

#### Circumstances of Longford Mills Incident

Longford, a very small community, now a Police Village, contains two industries which were desirous of obtaining power - the Longford Quarry Company and a branch of the Standard Chemical Company. The Municipality is located about five or six miles from the main transmission lines of the Commission and about the same distance from the main transmission lines of the Orillia Water, Light and Power Commission. In 1915, the above mentioned companies asked





for estimates from the Orillia Water, Light and Power Commission and from the Power Commission, who were both very anxious to secure the contracts. The Power Commission held several meetings and made every endeavor to persuade the people to carry the by-law in their favour. Several Orillia financiers had capital invested in the Standard Chemical Company and wished to see the Orillia Water, Light and Power Commission obtain the contracts.

The result of the vote on the by-law submitted in the Township of Rama, June 7th, 1915, was in favour of the Orillia Commission. In spite of this the Power Commission sent Engineers to address meetings in the Townships of Rama and Mara, through which Townships the power lines of the Orillia Commission would have to pass to reach Longford Mills, with a view to persuading these Townships to refuse permission for the rights-of-way through the said Townships. The Power Commission did all in its power to prevent the Orillia Commission from carrying out the contracts which the Power Commission itself had been refused. Telegrams were sent to the municipalities of Beaverton, Cannington and Woodville in this connection as follows:

"June 12, 1915.

Meeting Mara Council Monday. Urge attendance strong deputation to oppose granting Orillia franchise. Your interest in Waddell's Power System may suffer".

In addition the following letter was sent by the Commission, copies of which were mailed to the municipalities of Woodville, Cannington, Beaverton, Brechin and the Townships of Mara, Thorah and Brock:-



The result of the vote on the by-law submitted in the  
Township of ... was in favor of the ...  
In spite of this the Power Commission ...  
... in the Township of ...  
... which Township the power lines of the ...  
... have to pass through ...  
... to release permission  
for the right-of-way through the said Township. The Power  
Commission did all in its power to prevent the ...  
... and the ...  
...  
the ...  
this ...

... ..  
... ..  
... ..  
... ..

in addition the following letter was sent by the  
Commissioner, copies of which were mailed to the municipalities  
of New York, Washington, New Jersey, New York and New York  
of New York, New York and New York.

"June 17th, 1915.  
P. F. E.

Mr. Vroman,  
Inspecting Trustee,  
SUNDERLAND, Ontario.

Dear Sir:-

Re: Power to Longford Mills

You are undoubtedly now aware of the attempt being made by the Orillia Light and Water Commission to transmit power through Rama and Mara Townships to the Standard Chemical Company, at Longford Mills,

We wish to draw your attention to this matter again, since the Township of Rama on June the 7th passed By-law No.327 giving the Orillia Water, Light & Power Commission rights through the Township of Rama. This franchise was secured from the Township Council hurriedly and in such a manner that the Township Council was not aware that the interests of other parties were at stake.

We have reason to believe that the Township Council of Rama will reconsider this By-law and we suggest that you send a strong deputation to the next meeting of the Rama Township Council for the purpose of showing reasons why said By-law No.327 should be repealed and rendered null and void.

We understand that the next meeting of the Rama Township Council is to be held at the pleasure of the Reeve, Mr. Henry Hevener, R. R. #2, Atherley Post Office, and we are writing to suggest that they hold their next Township meeting at their Township Hall at Fawkhams Corners on the morning of Wednesday, June 23rd.

Please note that Mr. P. Byrne, Councillor, of Beaverton, has consented to act as local organizer for this matter, and you would do well to communicate with him by 'phone in connection with the hour of meeting.

We might advise that we expect to have a representative at this meeting, and since the Township Councillors of Rama have expressed their ignorance of the Hydro Commission's operation and methods, we ask that you join with our representative and the representatives from the other municipalities on the Wasdell's System in taking the Rama Township Council for a visit to our power house at Wasdell's Falls on the date indicated above.



*Journal of Interpersonal Violence* 27(10)

100

100-443887-100

0110 547462 21 1000 1000

For the reasonably well known of the following  
which were by the British and the American  
to be made by the British and the American  
the British and the American

10-10-40

[illegible]

The meeting was held at the Hotel... of the Mayor, Mr. Henry... of the Mayor, Mr. Henry... of the Mayor, Mr. Henry...

for this matter, and you would do well to communicate with the Bureau in connection with this matter.

It was a very interesting and profitable trip. We were very well received and the people were very friendly. We saw many interesting things and had a very good time. We were very well taken care of and the trip was very successful. We were very well received and the people were very friendly. We saw many interesting things and had a very good time. We were very well taken care of and the trip was very successful.

We are certain that if these Councillors are made acquainted with this Commission's aims and duties to the ratepayers they will be willing to reconsider their former action and repeal By-law No.327.

We are writing to the Township Council of Rama setting forth the reasons why said By-law should be repealed. These are substantially the same reasons as put forward at the meeting held in Brechin on June 14th, when the Orillia Commission attempted to have a By-law passed through the Mara Township Council. As you well know, a stubborn fight was put up by the Orillia Commission to secure entrance into and through the Township of Mara. It was only due to the united efforts and hearty co-operation of the ratepayers and officials on the Waddell's System that the efforts of Orillia to invade your power field were defeated.

We are well aware of the ability and resourcefulness of the Orillia Commission, and while you have secured a victory in Mara, we believe it of vital interest that you should also secure the repeal of the By-law in Rama. It is for this reason that we are writing you at length requesting your co-operation and attendance at the Rama meeting. We trust that you will not consider this of secondary importance, and will, if possible, send a strong and representative delegation to the meeting in Rama.

In our letter to you re the meeting in Mara we set forth the reasons for our position. In view of the information secured at the Mara meeting we are able to directly refute some of the statements made by the Orillia Commission and the Chemical Company. We briefly summarize the reasons for your opposition to the Orillia application as follows:

(1) At the expense of over \$226,000., loaned by the Province, but secured by our contracts with the municipalities on the Waddell's System, this Commission has erected a modern and first-class generating and transmission system to serve the northern half of Ontario County and the adjoining district to the east.

(2) Contracts with the various municipalities provide that the ratepayers thereof agree to pay all expenses of the system, and, in addition, refund to the Government, with interest, the investment made. The investment is, therefore, ~~your~~ investment and this Commission is acting only as trustee in the matter.



We are certain that if these Commissioners are made acquainted with this Commission's plan and their to the ratifiers they will be willing to reconsider their former action and repeal By-law No. 83V.

It was stated in the Township Council at their meeting that the reasons why said By-law should be repealed. These are substantially the same reasons as put forward at the meeting held in October on June 14th. When the Council Committee suggested to the By-law passed through the Council recently, as you will know, a resolution that was put up by the Council Committee to have the By-law repealed and through the Township Council. It was only the By-law which was repealed. It was only the By-law which was repealed and officials on the operation of the ratifiers and officials on the Council. It was only the By-law which was repealed and officials on the Council. It was only the By-law which was repealed and officials on the Council.

It was stated in the Township Council at their meeting that the reasons why said By-law should be repealed. These are substantially the same reasons as put forward at the meeting held in October on June 14th. When the Council Committee suggested to the By-law passed through the Council recently, as you will know, a resolution that was put up by the Council Committee to have the By-law repealed and through the Township Council. It was only the By-law which was repealed and officials on the operation of the ratifiers and officials on the Council. It was only the By-law which was repealed and officials on the Council.

It was stated in the Township Council at their meeting that the reasons why said By-law should be repealed. These are substantially the same reasons as put forward at the meeting held in October on June 14th. When the Council Committee suggested to the By-law passed through the Council recently, as you will know, a resolution that was put up by the Council Committee to have the By-law repealed and through the Township Council. It was only the By-law which was repealed and officials on the operation of the ratifiers and officials on the Council. It was only the By-law which was repealed and officials on the Council.

It was stated in the Township Council at their meeting that the reasons why said By-law should be repealed. These are substantially the same reasons as put forward at the meeting held in October on June 14th. When the Council Committee suggested to the By-law passed through the Council recently, as you will know, a resolution that was put up by the Council Committee to have the By-law repealed and through the Township Council. It was only the By-law which was repealed and officials on the operation of the ratifiers and officials on the Council. It was only the By-law which was repealed and officials on the Council.

It was stated in the Township Council at their meeting that the reasons why said By-law should be repealed. These are substantially the same reasons as put forward at the meeting held in October on June 14th. When the Council Committee suggested to the By-law passed through the Council recently, as you will know, a resolution that was put up by the Council Committee to have the By-law repealed and through the Township Council. It was only the By-law which was repealed and officials on the operation of the ratifiers and officials on the Council. It was only the By-law which was repealed and officials on the Council.

(3) In order to make the system feasible it was necessary for the municipalities to pledge themselves to use certain quantities of power. Since the system was only placed in operation last Fall, it has, of course, been impossible to utilize the full amount of power contracted for. There is, therefore, a surplus of power available on the system, and since the enterprise is co-operative and mutually helpful to all the municipalities contracting for power the present price of power is high.

To reduce this cost of power it is necessary to increase the amount of power used, making it very necessary that in the districts served every possible power user be secured for your system. We contend that Orillia's attempt to secure a power contract at Longford is a direct invasion of the power field which rightfully belongs to your system. It is very evident, therefore, that it is to the interest of every rate-payer in Northern Ontario County, and even in the adjoining district to the west, which at present or in the future will secure power from the Wasdells System, to oppose the attempt of Orillia to enter the Wasdells field.

At the meeting held in Brechin on the 14th attended by a large delegation from your district, and also a strong delegation from Orillia, the latter contended that this Commission and yourselves were asking Mara Township to be the "dog in the manger" and refuse Orillia permission to pass through the Township when the Township has nothing to lose. They appealed on the score of sympathy for the Chemical Company, claiming that the Orillia power contracts would mean a large saving - some \$5,000 or \$8,000 - to the Chemical Company. We wish to directly refute these statements and believe that you will agree with our contentions.

As far as we can find in the By-law passed in Rama Township, and the one submitted to Mara, no compensation was offered to these Townships in any way. The Township of Rama has given the Orillia Commission permission to trim trees along the highways without sufficient protection to the Township's interests. There is nothing in the By-law giving the Township the right to regulate the manner of erecting the transmission line, or any supervision over its type of construction or safety. The By-law is indefinite in that it has no termination.

The Orillia Commission, it is true agrees to supply users along the proposed route of transmission line at rates current in Orillia, plus 10%, but you will



(8) In order to make the system feasible it was necessary for the municipality to place themselves in a position to be able to pay for the system. It was only after the system had been installed and the municipality had been able to pay for it that the system was considered for. The fact is, therefore, a supply of power available to the system, and since the enterprise is co-operative and generally helpful to all the municipalities it is considered that the system will be of great benefit to the public.

To recover this cost of power it is necessary to increase the amount of power used, making it very necessary that the municipality should pay for the power used for their system. No other power can be secured for their system. The fact is, therefore, a supply of power available to the system, and since the enterprise is co-operative and generally helpful to all the municipalities it is considered that the system will be of great benefit to the public.

As the municipality is not able to pay for the power used for their system, it is necessary that the municipality should pay for the power used for their system. No other power can be secured for their system. The fact is, therefore, a supply of power available to the system, and since the enterprise is co-operative and generally helpful to all the municipalities it is considered that the system will be of great benefit to the public.

As far as we are concerned in the system, we are not able to pay for the power used for our system. The fact is, therefore, a supply of power available to the system, and since the enterprise is co-operative and generally helpful to all the municipalities it is considered that the system will be of great benefit to the public.

The Ontario Commission, it is now agreed to supply power to the system, and since the enterprise is co-operative and generally helpful to all the municipalities it is considered that the system will be of great benefit to the public.

note that the revenue must be sufficient to pay 25% annually on the cost of the line, transformers, etc. Can the residents of Rama Township prove that the possible revenue will meet with these conditions? What protection has Rama Township in this regard, and how can they force the Orillia Commission to serve farmers and others along the route?

The entire By-law is drawn up in favor of Orillia, and with no protection whatever to the Township of Rama.

As far as the possible saving in power bill to the Chemical Company is concerned, by buying power from Orillia, we have requested permission to see the proposed Orillia power contract and have been refused. We have reason to believe that the terms and conditions, as well as the price offered by Orillia, are not so good as the terms and conditions offered by this Commission for service from the Wasdell's System.

It should be noted in passing that we have negotiated with the Chemical Company for many months and submitted definite contracts. We have had reason to believe that the terms and prices were agreeable to the Chemical Company and in fact they ordered an electric pump on the strength of this Commission's power quotation.

Our proposed contract with the Chemical Company is public property and the terms and conditions thereof are open to all for inspection and criticism. The same cannot be said of the Orillia contract. The Orillia Commission has been negotiating in private with the Chemical Company, and it is impossible for us to secure from either the Orillia Commission or the Chemical Company the terms and conditions of their proposed contract, so that we may be satisfied that power from Orillia will save anything to the Chemical Company.

In justice to yourselves and to this Commission as your Trustees, we should be in possession of the facts, in order to meet the contention of the Chemical Company that Orillia can sell them power cheaper than we can.

It is evidently realized that the proposed Orillia contract will not bear inspection by our engineers.

Our offer to the Chemical Company was 200 horsepower at \$33.00 per horse-power per year, delivered on their ground in Longford at 2,300 volts. A ten-year contract was submitted on the above terms and a guarantee was asked to secure our investment in the transmission line from Fawkhams to Longford, and a substation in Longford.





While possibly Rama Township is not vitally interested in Hydro power at this time as are other Townships to the south, we believe that you can point out to them that if they as a municipality wish to contract for power they may do so and enjoy with the other municipal partners in the scheme all the benefits to be derived from a supply of cheap electric power.

We believe also that the Township of Mara will appreciate that loyalty to Ontario County and the Wasdells District is more necessary than loyalty to Orillia. No one has shown that it would be a hardship on the Chemical Company to take power from this Commission's Wasdells System instead of from Orillia. Until they can prove this to our satisfaction we have grave doubts on the matter. They have evidently appealed to the sympathy of the Townships, and particularly to Rama, wherein is located the large plant of the Chemical Company.

It should also be noted that prominent citizens of Orillia are interested in the Orillia Commission, as well as the Standard Chemical Company of Longford. There is evidently a sympathetic connection between the two parties, which is endeavoring to make an agreement to their mutual advantage and to the serious disadvantage of your investment in the Wasdell's System.

As stated earlier in this letter, Mr. P. Byrne of Beaverton will communicate with you in the event of any change in the date for the meeting in Rama Township.

We ask your continued co-operation in this matter, and feel certain that you will again respond.

Very truly yours,

HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO

Chief Engineer".

FPE-BEF

2

As the municipality of Longford Mills is obtaining power from the Orillia Water, Light and Power Commission, it is apparent that the efforts of the Power Commission to reverse the vote on By-law No.327, referred to in the foregoing letter, was not successful.



1003

[illegible][illegible]

It should also be noted that prominent officials of  
the State Department in the White House, as well  
as the Secretary of State, have been  
receiving a considerable number of letters from  
the various groups in the country which are  
opposed to the present administration of the  
country and to the present administration of the  
country in the United States.

It is stated again in this letter, Mr. P. Page of  
Beverly will communicate with you in the event of any  
change in the date for meeting in New England.

10-10-68

Very truly yours,

to and

2000-2001

It is expected that the above information  
will be of value to the Bureau and the  
Department in the investigation of the  
subject of this report.

point later, we will discuss.

The foregoing review of the inauguration, conditions and operations of the Wasdell's System discloses subject matters common to other undertakings of the Commission requiring careful consideration and probably statutory amendments to more clearly define the powers and duties of the Commission. These general subject matters include those of "Renewal Reserves", "Sinking Fund Reserves", "Rural Lines", the more or less indiscriminate use of funds in the hands of the Commission without regard to the specific purposes for which they were advanced, the policy and practice which should be followed by the Commission when it enters fields already occupied by other power undertakings, especially in such cases as in the Wasdell's System, where a municipality within the System has its own power development and distributing System and prefers to remain free from the jurisdiction and control of the Commission.

We propose to deal with such general matters in our General Report and respectfully reserve comment upon the Wasdell's System other than what appears in the foregoing review.

All of which is respectfully submitted.

DATED AT TORONTO, *Sept 21<sup>st</sup>* 1923

W. D. Gregory, Chairman  
M. J. Haney  
Lloyd Harris  
J. Allan Ross  
R. A. Ross





